The Journal of the

International College of Surgeons

ELEVENTH NATIONAL ASSEMBLY

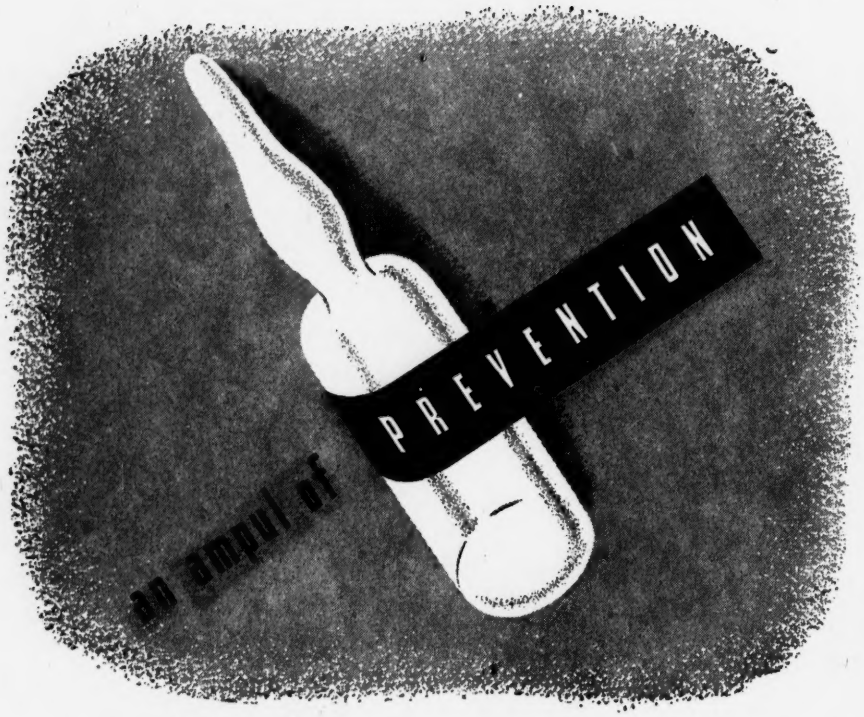
United States Chapter International College of Surgeons

Detroit, Michigan, October 20–23, Inclusive

Statler Hotel — Book-Cadillac Hotel — Masonic Temple

(See pp. 465 and 475)

Vol. IX *July-August, 1946* **No. 4**



Postoperative distention and urinary retention may occur despite the most skilful surgical technic. Fortunately, the severe distress of "gas pains," discomfort of catheterization, and the need for enemas and symptomatic therapy may be obviated—and the patient afforded a smoother convalescence—by parenteral administration of one ampul (1 cc) of Prostigmin Methylsulfate* 1:4000 at the time of operation, repeated at 2-hour intervals for a total of 6 injections. Recognition of this fact by leading surgeons has made the prophylactic use of Prostigmin a routine measure in many hospitals.

HOFFMANN-LA ROCHE, INC., Roche Park, Nutley 10, New Jersey

*Neostigmine Methylsulfate

Prostigmin 'ROCHE'

Original Articles

Improvements in the Single Stage Operation, Without Colostomy for Cancer of the Large Bowel

W. WAYNE BABCOCK, M.D., F.A.C.S., F.I.C.S.*
PHILADELPHIA, PENNSYLVANIA

DURING recent years single-stage operations have increasingly supplanted multiple-stage technics for the operative eradication of intestinal cancer. With the use of less toxic anesthetics and especially with extended spinal anesthesia associated with inhalation of oxygen, and the slow transfusion or infusion of blood, saline, dextrose, amino acids or gelatin solution, prolonged and very extensive operations may be performed upon the intestinal tract with little shock or serious depression.

For spinal anesthesia, I use a mixture of 12 to 15 mg. of pontocaine with 80 to 100 mg. of procaine dissolved in 2.2 to 2.5 cc. of distilled water. This is injected through the first or second lumbar interspace and the upper part of the body instantly elevated 5 to 10 degrees for the first ten minutes or until the drug has become fixed. Usually this will give anesthesia of the abdominal region lasting for three to four hours. This may be prolonged by the free use of local and splanchnic anesthesia or the intravenous use of sodium pentothal.

For three years I have not used the Mikulicz-Paul or multiple-stage operation, although I appreciate that an emergency, such as a leakage from the bowel, may necessitate a hurried resort to a Mikulicz termination of the operation. The Mikulicz-Paul operation, particularly when used for removal of the sigmoid, utilizes so much bowel and mesentery to form the arms of the loop, as well as to pass through and project well above the abdominal wall (in an obese patient even over 30 cm.), that the operation may be insufficiently radical. It is therefore not surprising that more recurrences of carcinoma in the abdominal wall, residual bowel or mesentery occur after the Mikulicz operation than after approved single-stage procedures.

For resection of the large bowel for a neoplasm situated above the mid-rectum, an aseptic end-to-end anastomosis may now be done, with an expected mortality of 4 per cent or less and average postoperative hospitalization of two weeks. Personally, I prefer the Furniss or other modification of the Donati clamp (using one clamp and pin for the two arms of the liberated loop of bowel and omentum) and an inner seroserous suture of continuous 00 chromic catgut together with one or two outer rows of interrupted sutures of 36 gauge stainless steel wire tied in a square knot. A sump drain to the bottom of the pelvis, brought out through the wound (or through a separate stab wound) is used to aspirate postoperative exudate and blood during the early days following operation. To reduce intra-abdominal pressure upon the line of suture, a complemental appendicostomy

* From the Surgical Department of Temple University School of Medicine, Philadelphia.

or cecostomy is made through a stab wound, for resections of the left colon.

For resections of the right half of the colon, having liquid ileal contents, a complemental enterostomy is rarely necessary. A side-to-side anastomosis is not well adapted for these radical resections. Where a complete colectomy is indicated, as with ulcerative or polypoid colitis associated with carcinoma, a hemicolectomy including the cancerous segment, with end-to-end anastomosis, is used first and several weeks later the residual segment is removed with, if feasible, an end-to-end ileoproctorrhaphy. By this modification, the mortality (6 per cent or more) associated with an ileostomy is eliminated.

For new growths situated between 5 and 11 cm. above the anus, a one-stage abdominoperineal proctosigmoidectomy with retention of a functional anus is used. The rectosigmoid is liberated on a somewhat wider scale than in the Miles operation; but through a left lower quadrant, muscle-splitting incision parallel with and about 3 cm. above the left inguinal ligament. Sufficient vascular upper sigmoid is liberated (12 cm.) to reach from the sacral promontory through the pelvic floor. No pelvic diaphragm is formed, as experience with over 200 cases has shown that the pelvic walls even when extensively denuded of peritoneum rarely produce complication. The abdominal wound is closed with a single sump drain to the bottom of the pelvis which is continuously aspirated by motor for several days or until blood and serum are no longer removed in quantity.

With the patient in the lithotomy position, the rectum is cleansed and packed with gauze wet with 3.5 per cent tincture of iodine. A posterior midline incision is made through the anus, sphincters and pelvic floor to the coccyx. The rectum is then divided just above the sphincters, the upper edge of the rectum being grasped with forceps and liberated, and the rectosigmoid pulled through the pelvic floor. The muscles of the pelvic floor and the skin are united back of the sphincters with three or four layers of buried interrupted sutures of 32 and 35 gauge stainless steel wire only, taking great care that the withdrawn sigmoid is not constricted. Dressings are applied, the rectosigmoid amputated 10 cm. beyond the perineum, and a rectal tube tied into the protruding end. In about six days, the rectal tube sloughs out; on the seventh to ninth day, the protruding segment of sigmoid is amputated painlessly about 2 cm. below the perineum, without anesthetic, by a heavy tonsil snare or cautery. Following this, the end of the sigmoid retracts within the anus and spontaneously unites to the upper edge of the anal mucosa. If the narrow annular scar at the line of anastomosis contracts, the patient is instructed to dilate the area daily until the tendency is overcome. A set of test tubes may be used as dilators. The resulting perineum and anus closely resemble the normal. Sphincter contractions and defecation sense are retained; the sphincters, while usually not watertight, commonly will retain solids sufficiently well to render the continuous wearing of a pad unnecessary.

To control any incontinence, an irrigation of the colon or a saline laxative is used to empty the bowel thoroughly every two to five days. In the interim most patients are able to go about without special protection.

For *carcinoma involving the anus or terminal 5 cm. of rectum,* a wide perineal and rectal resection is used. The rectosigmoid to be withdrawn is best liberated through an abdominal incision. This enables the exploration of the

(Continued on page 480)

Carcinoma of the Uterus:

The Question of Treatment by Surgery or Irradiation*

DEWARD O. FERRIS, M.D.
ROCHESTER, MINNESOTA

RECENT statistics show that carcinoma develops in the uterus more frequently than in any other organ or part of the female body. Of 5,377 cases in which carcinoma of the uterus was treated at the Mayo Clinic from 1910 to 1944, inclusive, in 3,799 cases the lesion was primary in the cervix and in 1,578 cases it was in the corpus uteri. The ratio of carcinoma of the cervix to carcinoma of the corpus uteri in this series is 2.4:1. Since indications for treatment vary with the site of the primary growth, as well as with the extent of the disease and its degree of malignancy, carcinoma of the cervix and of the corpus uteri must be considered separately. Of course, there are other malignant lesions of the uterus; namely, chorionepithelioma, myosarcoma and sarcoma of the endometrium, which will not be discussed in this paper.

In this series, 93.2 per cent of the cervical carcinomas were squamous cell epitheliomas and the remainder were adenocarcinomas of the cervical canal. Almost all of the carcinomas of the corpus uteri are adenocarcinomas. These three types of carcinoma all behave differently, present a different histologic picture and carry a different prognosis.

When the diagnosis of carcinoma of the uterus is accurately made by microscopic study of biopsy material, permanent cure can be obtained only by radical and effective treatment. The type of treatment and the ultimate result of such treatment will depend not only on the extent of the disease but also, in a large measure, on the grade of malignancy present. The work on grading, as described by Broders,[1] taking into consideration chiefly the differentiation of the tumor cells, has been of great prognostic value. He has graded them 1, 2, 3 and 4, the latter being the most malignant. The clinical classification, based on that of the Health Organization of the League of Nations[2] which describes four stages, is a great help in tabulating or differentiating cases. However, one must not be misled by fixation or infiltration in the broad ligaments, as this may be the result of coëxisting inflammatory disease or endometriosis. The stage of the growth is, no doubt, of great importance from a prognostic standpoint and as a means of helping to decide on the type of treatment but it does not represent as good a guide to the ultimate outcome as the histologic appearance of the tumor cells.

Let us consider first squamous cell epithelioma of the cervix. If the patient has a fair prospect of cure the treatment should be either removal of the epithelioma by one skilled in the procedure of radical hysterectomy or radium treatment by one experienced in radiotherapy, or a combination of these.

* Presented at the meeting of the International College of Surgeons, Washington, D. C., December 6 to 8, 1945.

The choice will depend on the stage and grade of the lesion under consideration, the age of the patient, the duration of the disease and the probable difficulties and dangers of removal. In general, a stage 1 epithelioma of the cervix in a young woman, not obese and in good general condition, probably is best handled by radical hysterectomy followed by effective irradiation. All others probably are best treated by radium. Even if one admits that the treatment of a select group of early epitheliomas of the cervix should be surgical, and if a surgeon accustomed to the special type of radical hysterectomy required performs the operation, one is impressed immediately by the fact that such cases rarely are encountered. At the Mayo Clinic, in 677 new cases epithelioma of the cervix treated in the years 1940 to 1944, inclusive, in only 114 cases (16.8 per cent) was operation undertaken.

If adenocarcinoma of the cervical canal is discovered early, the prospect for cure by surgical means is definitely better than for squamous cell epithelioma, because adenocarcinoma here frequently is of low grade. Unfortunately, however, the first symptom of an adenocarcinoma of the cervical canal frequently is a severe hemorrhage. This results from ulceration of a cervical artery and, in most cases, by the time this occurs the condition is hopelessly inoperable owing to the extension of the malignant lesion into the parametrium.

The outlook in cases of carcinoma of the corpus uteri is much more hopeful than in cases of carcinoma of the cervix; in fact, the prospect for cure of carcinoma of the uterine fundus is better than that of carcinoma of the same grade of malignancy in any other part of the body.[3] This probably is due, in large measure, to the fact that in most cases the lesion occurs at or after the menopause when there is no doubt a definite change in the vascular and lymphatic drainage from the genital organs. The myometrium also is a barrier to extension to other organs. As a rule, carcinoma of the corpus uteri develops slowly and metastasis occurs relatively late. On this account it is not necessary or advisable to submit patients who have carcinoma of the corpus uteri to the radical surgical procedures that are indicated for cervical carcinoma. Panhysterectomy, after the cervix has been sutured closed, is the treatment of choice. It has been our practice at the Mayo Clinic to give postoperative irradiation when the growth is found to be of a high grade of malignancy. There are, however, two small groups of cases in which the radiologist has considerable interest: in the first instance, in extensive malignant lesions that are too widespread for any curative surgical intervention but are capable of receiving much help from limited radiation therapy; secondly, in favorable small lesions which would be excisable except for the poor general condition of the patient, who is often suffering from serious disease not related to the carcinoma.

In table 1, the hospital mortality rate is within reasonable limits. It will be noted that there is a hospital mortality rate for irradiation.

In table 2, the operative series is too small to be of much significance. Three patients died of pulmonary emboli.

Table 3 shows the high mortality rate of 5.8 per cent for operation without irradiation. This represents all the cases since 1910. The mortality rate varied from time to time; in the five year period from 1920 to 1924, inclusive, it was 14.1 per cent and in a simi-

lar period from 1940 to 1944, inclusive, it was 1.1 per cent.

In table 4, other operations include amputation of the cervix, cautery of the cervix, exploration and so forth. Many of these were done in the early years, but it is now known that a radical operation must be done. I have had to classify the operations as total abdominal hysterectomy and vaginal hysterectomy rather than as Wertheim's hysterectomy and Shauta's vaginal hysterectomy because many of the earlier cases were not so designated. There is no doubt that a more radical operation than the regular panhysterectomy must have been done in most cases but many of them could not be classed as the radical procedures. If the latter had been performed in all cases, I am sure I would be able to show a higher operative percentage of five-year cures. It is obvious from this table that postoperative irradiation is advantageous.

In the cases referred to in table 5, hysterectomy was panhysterectomy.

Most of the fifty-nine women, referred to in table 6, on whom subtotal abdominal hysterectomy was done probably now would be treated by irradiation alone.

Table 7 gives an over-all picture of the preceding tables. Fifty-three and four-tenths per cent five-year cures of squamous cell epithelioma of the cervix by combined treatment would perhaps indicate that removal of the regional lymph nodes is an important factor, as pointed out by Taussig.[4] Radium is more efficient in destroying the cervical carcinoma than irradiation is in destroying regional lymph nodes. From this table one also notes that the total hospital mortality rate is less than 4 per cent. I believe that one should not be satisfied if this goes above 4 per cent for radical hysterectomy. Meigs[5] recently has shown that the hospital mortality rate for radical hysterectomy can be kept less than this.

In the last five years, our hospital mortality rate for radical hysterectomy for cervical malignant lesions has been 6.4 per cent and during the same period our hospital mortality rate for panhysterectomy for carcinoma of the uterine fundus has been 1.1 per cent.

In our most recent study, the five-year survival rate for squamous cell epithelioma of the cervix treated by Wertheim's hysterectomy and irradiation was 67.1 per cent. The hospital mortality rate for this series was 8 per cent.

CONCLUSIONS

1. There is no doubt that effective surgical treatment, when attempted only in suitable cases of squamous cell epithelioma of the cervix by surgeons accustomed to the tedious dissection necessary, gives a relatively high percentage of cures at a reasonable mortality rate. When such treatment is given in conjunction with irradiation under the direction of an expert in this field of therapy the results are so good that I feel that further trial is justifiable. In stage 2 lesions, Taussig's iliac lymphadenectomy and irradiation should be considered. All others should be treated by radium and roentgen rays.

2. Adenocarcinoma of the cervix, if seen early, is best treated by panhysterectomy and irradiation.

3. Operation must still be considered the best treatment for carcinoma of the uterine fundus.

4. There is no doubt that progress is being made with a better understanding of the physical properties and reactions of radium and roentgen rays and the added protection of this treatment is advisable in most cases of carcinoma of the uterus.

TABLE 1

SQUAMOUS CELL EPITHELIOMA OF CERVIX; HOSPITAL MORTALITY BY TYPE OF TREATMENT

Type of Treatment	Total Patients	Hospital Deaths	
		Number	Per Cent
Operation	408	16	3.9
Operation and irradiation	374	6	1.6
Irradiation	2,760	28	1.0
TOTAL	3,542	50	1.4

TABLE 2

ADENOCARCINOMA OF THE CERVIX; HOSPITAL MORTALITY BY TYPE OF TREATMENT

Type of Treatment	Total Patients	Hospital Deaths	
		Number	Per Cent
Operation	38	3	7.9
Operation and irradiation	46	0	0
Irradiation	173	4	2.3
TOTAL	257	7	2.7

TABLE 3

CARCINOMA OF THE UTERUS; HOSPITAL MORTALITY BY TYPE OF TREATMENT

Type of Treatment	Total Patients	Hospital Deaths	
		Number	Per Cent
Operation	728	42	5.8
Operation and irradiation	456	2	0.4
Irradiation	394	6	1.5
TOTAL	1,578	50	3.2

TABLE 4

SQUAMOUS CELL EPITHELIOMA OF THE CERVIX; FIVE YEAR SURVIVAL RATES BY TYPE OF OPERATION *

Operation	Operation		Operation and Irradiation	
	Patients Traced	5 Yr. Survival Rate, Per Cent	Patients Traced	5 Yr. Survival Rate, Per Cent
Total abdominal hysterectomy	133	38.3	175	60.6
Vaginal hysterectomy	58	46.6	30	50.0
Other operations	148	8.1	72	37.5
TOTAL	339	26.5	277	53.4

* Inquiry as of January 1, 1945. Only cases of 1939 or earlier are included.

TABLE 5

ADENOCARCINOMA OF THE CERVIX; FIVE YEAR SURVIVAL RATES BY TYPE OF OPERATION *

Operation	Operation		Operation and Irradiation	
	Patients Traced	5 Yr. Survival Rate, Per Cent	Patients Traced	5 Yr. Survival Rate, Per Cent
Total abdominal hysterectomy	13	84.6	17	64.7
Vaginal hysterectomy	6	50.0	7	71.4
Other operations	8	25.0	10	60.0
TOTAL	27	59.3	34	64.7

* Inquiry as of January 1, 1945. Only cases of 1939 or earlier are included.

TABLE 6

CARCINOMA OF THE UTERUS; FIVE YEAR SURVIVAL RATES BY TYPE OF OPERATION *

Operation	Operation		Operation and Irradiation	
	Patients Traced	5 Yr. Survival Rate, Per Cent	Patients Traced	5 Yr. Survival Rate, Per Cent
Total abdominal hysterectomy	329	78.7	243	67.9
Subtotal abdominal hysterectomy	38	73.7	21	52.4
Vaginal hysterectomy	68	66.2	23	69.6
Other operations	7	14.3	20	15.0
TOTAL	442	75.3	307	63.5

* Inquiry as of January 1, 1945. Only cases of 1939 or earlier are included.

REFERENCES

1. Broders, A. C.: The Grading of Carcinoma, Minnesota Med. 8:726–730 (Dec.) 1925.

2. League of Nations Health Organization, Cancer Commission: Reports submitted by the Radiological Sub-Commission. Geneva, League of Nations Publications, 1929, 82 pp.

3. Masson, J. C.: Carcinoma of the Uterus, New Orleans M. & S. J., 92:235–243 (Nov.) 1939.

4. Taussig, F. J.: Iliac Lymphadenectomy for Group II Cancer of the Cervix; Technique and Five-Year Results in 175 Cases, Am. J. Obst. & Gynec. 45:733–748 (May) 1943.

5. Meigs, J. V.: Carcinoma of the Cervix—the Wertheim Operation, Surg., Gynec. & Obst., 78:195–199 (Feb.) 1944.

TABLE 7

HOSPITAL MORTALITY AND FIVE YEAR SURVIVAL RATES BY TYPE OF LESION AND TYPE OF TREATMENT

	Cervix				Uterus, Carcinoma, Per Cent	
	Epithelioma, Per Cent		Adenocarcinoma, Per Cent			
Type of Treatment	5 Yr. Survival Rate	Hospital Mortality	5 Yr. Survival Rate	Hospital Mortality	5 Yr. Survival Rate	Hospital Mortality
Operation	26.5	3.9	59.3	7.9	75.3	5.8
Operation and irradiation	53.4	1.6	64.7	0	63.5	0.4
Irradiation	29.6	1.0	34.0	2.3	31.1	1.5
TOTAL	31.8	1.4	44.3	2.7	60.6	3.2

SUMMARY

In a detailed and comprehensive report on the results of a large number of cases of carcinoma of the uterus, the author offers the conclusion that, in carefully chosen cases, surgery offers the best hope of cure. Adenocarcinoma of the cervix, if seen early, is best treated by the combination of panhysterectomy and irradiation. Operation must still be considered the best treatment for carcinoma of the uterine fundus. The added protection of treatment by radium and roentgen rays is advisable in most cases of carcinoma of the uterus.

RÉSUMÉ

L'auteur nous fait un rapport détaillé et comprehensif sur les résultats obtenus dans un grand nombre de cas de carcinome utérin. L'auteur nous dit que dans les cas choisis avec soin, la chirurgie nous procure les meilleurs résultats. L'adénocarcinome du col utérin dans les cas peu avancés doit être traité par la panhysterectomie et l'irradiation. Pour le cáncer du fundus utérin on aura recours à la chirurgie. Dans le carcinome de l'utérus, comme supplément à l'exérèse, on aura dans presque tous les cas recours au radium et aux rayons X.

RESUMEN

En un comprensivo y detallado estudio acerca de los resultados en un gran número de casos de carcinoma uterino, al autor llega a la conclusión de que la cirugía constituye la esperanza más firme de curación. El adenocarcinoma del cuello, si se descubre precozmente, se trata del mejor modo mediante la combinación de panhisterectomía e irradiación. La intervención operatoria debe seguir siendo considerada como la mejor forma de terapéutica del carcinoma del fundus uterino. En la mayoría de los cánceres del útero es aconsejable el complementar la terapéutica para mayor protección con radio y rayos X.

Свод

В детальном и исчерпывающем докладе результатов в большом количестве случаев рака матки автор приходит к заключению, что в осторожно выбранных случаях хирургия дает лучшую надежду на излечение.

Адэнокарцинома шейки, если захвачена рано, лучше всего излечивается комбинацией панистерэктомии и радиации. Операция все еще считается лучшим способом лечения рака тела матки. Во всех случаях маточного рака рекомендуется добавочная протекция результатов радиацией радием или рентгенотерапией.

Exomphalos

JOHN ALAN EAST, F.R.C.S. (Eng.), F.I.C.S.*
SEVENKINGS, ESSEX, ENGLAND

EXOMPHALOS (Syn.; omphalocele, umbilical eventration) was first described by Ambroïse Paré in 1634. The condition is sometimes classified under congenital umbilical hernia; indeed, the Medicus Indicus so lists it, but it is certainly not a hernia in the true sense of that word, because some or all of the viscera found in the umbilical sac have never previously been within the abdominal cavity.

Exomphalos is a rare condition. Various statisticians have endeavored to arrive at the incidence, but their figures range between one in 5,000 and one in 11,500 births. Kleiner collected figures from various obstetric clinics in Leningrad and found it between one in 52,103 and one in 11,660. It is quite possible that the incidence actually is greater, because small herniations are often not entered in hospital records. The number of cases reported in the world's literature is comparatively small—about 300 cases. Of 10,036 examples of congenital abnormalities collected by Smith from the records of the Lying-in Hospital, New York, only eight were cases of exomphalos.

Obviously this anomaly is in some way connected with failure of retraction of the U-shaped loop. However, this explanation is not wholly satisfactory because normally the liver never obtrudes from the celom; yet in 30 per cent of cases of exomphalos, the liver is partly or wholly within the sac. In order to gain some understanding of the condition it is necessary to be familiar with the relevant developmental phenomena which result eventually in Nature's only scar, the umbilicus.

Embryology. If Mall's 7–7½ week embryos are examined, a considerable mass of convoluted small intestine and the budding embryonic cecum are extracelomic, lying in the sac at the base of the amniotic sac. By this time only one coil of small intestine is still extracelomic. During the tenth week, this solitary extracelomic coil follows its former companions into the peritoneal cavity. Normally the linea alba closes this cavity, first from the pubes to the umbilicus, later from the xiphoid to the umbilicus. In cases of imperfect closure, the defect would be more likely to be above the umbilicus, which is in keeping with clinical experience. Reviewing these facts, it must be conceded that in cases of exomphalos, something prevents normal retraction of the intestines, and having prevented it, causes or invites other viscera, notably the liver, to emigrate into the protrusion (figs. 1 through 4).

Etiology. The explanation for this developmental error is purely speculative. Berglass suggested that a discrepancy in the development of the abdominal wall and contents might result in insufficient intra-abdominal capacity. Mall has observed that just before the extrusion of the intestines into the exocelom, there is normally a rapid development of the liver. This may be the explanation of the presence of intestines in the exocelom in the normal (9 weeks) 32 mm. fetus. Later the lower abdominal cavity grows

* Surgeon, E.M.S., County Hospital, Chatham.

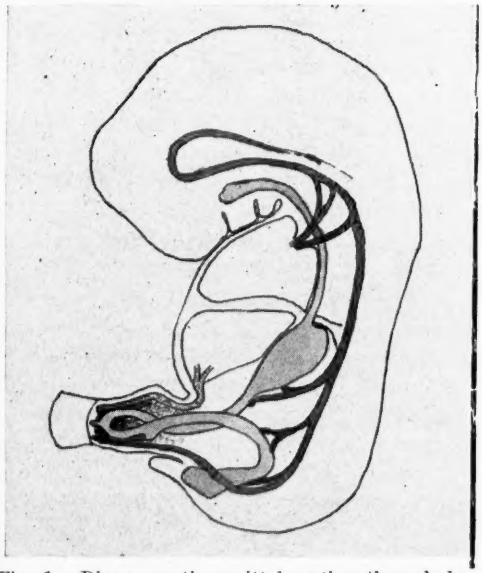


Fig. 1. Diagrammatic sagittal section through human embryo about 10 mm. long, showing small intestine and budding cecum in exocelom. Umbilical cord is still straight, containing simple, straight loop of intestine. Liver is rapidly enlarging and filling abdominal cavity.

speedily and the intestines are withdrawn into it. Another theory to explain exomphalos is that for some unknown reason the lower abdomen does not grow sufficiently fast and some viscera are forced to remain outside of it.

It has been noticed that the omphalomesenteric duct, or its remains, are more frequently present in these as compared with normal cases. Ahfeld has therefore suggested that one of the factors in this condition may be the holding of the abdominal contents in the umbilical cord by the persistence of the omphalomesenteric duct; however this certainly is not applicable to all cases.

Embom's theory is ingenious but not wholly satisfactory. He studied human and opposum embryos and came to the conclusion that the intestines are withdrawn into the abdominal cavity by contraction of the logitudinal smooth muscle fibres of the omphalomesenteric artery. A disturbance of this action may have some bearing on the non-retraction of the bowel, but certainly could not account for the presence of other viscera; e.g., liver, which develops from the gastroduodenal loop and is normally never in the exocelom.

Clinical features. The diagnosis is self-evident as soon as the child is delivered. The protrusion, which varies greatly in size, is limited by a trans-

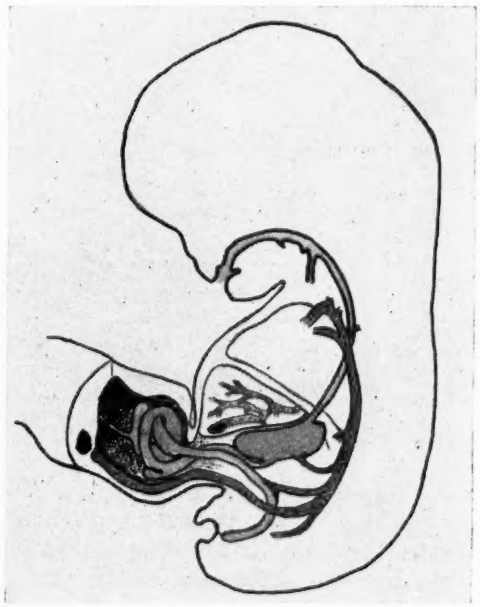


Fig. 2. Diagrammate sagittal section through human embryo 20 mm. long, showing most of small intestine in exocelom. Marked loop formation, cecum well formed. Liver takes up most of abdominal cavity.

parent wall consisting of peritoneum, a thin layer of Wharton's jelly, and the amniotic membrane. Sometimes there is no peritoneal covering to the viscera in the protrusion as the peritoneum stops at the umbilical ring. Through the limiting membrane the viscera are exposed to view. That small intestine

lies within is obvious and to be expected. From the clinician's standpoint, the important observation to make is "Does the sac contain the liver, or a portion

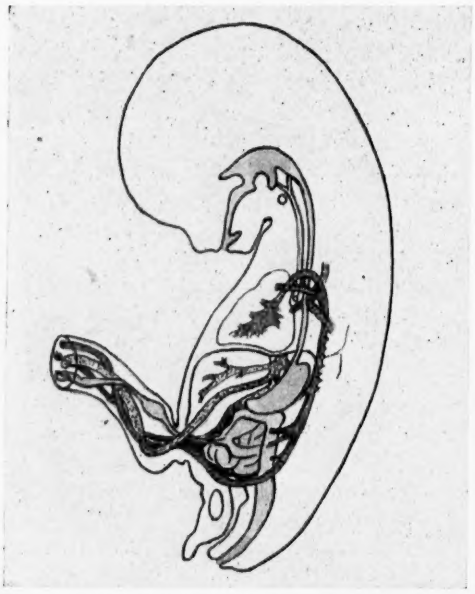


Fig. 3. Diagrammatic sagittal section through human embryo 40 mm. long; all intestinal loops have now receded into abdominal cavity. Umbilical artery and vein have assumed normal position in cord.

thereof?" for, if so, the operative treatment is likely to be very difficult. Actually in about 30 per cent of cases the sac contains some part of the liver, and in 25 per cent contains practically all of it, as well as other viscera, notably the spleen. The uterus and ovaries, the pancreas and the urinary bladder—indeed, every one of the abdominal viscera—have been noted within the sac in one case or another.

As a rule, the skin stops short at the base of the sac but it may extend into it as much as half an inch. The umbilical cord, or what remains of it, is attached to the apex of the sac or to the inferior edge and, on lifting up the cord, the two umbilical arteries and the umbilical vein can be seen entering the abdominal wall inferolaterally. In other cases, the umbilical vein is seen displaced upwards coursing over the contents of the sac while the arteries keep their position inferior to the contained viscera.

Such are the appearances at birth. During between twelve and twenty-four hours afterward, the sac progressively becomes opaque. If it has not been protected and kept moist it may have ruptured. Evidence of commencing infection is likely to be present after the first day.

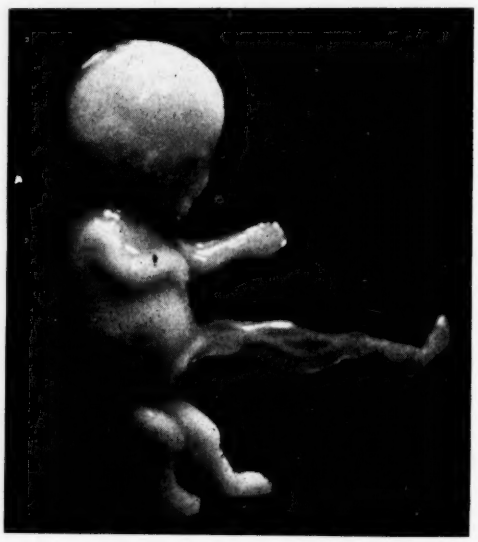


Fig. 4. Photograph of human embryo about 25 mm. long; small intestine still outside umbilicus visable through wall of cord.

Associated congenital anomalies occur frequently. Gross and Bloodget, reviewing 22 cases in Children's Hospital, Boston, found that half of these children had other associated anomalies. One child had Meckel's diverticulum, which opened in the sac, one had a harelip, two had clubfeet, two had inguinal herniae, one had hydrocephalus, one had

imperforate anus, two had undescended testicles, and one had multiple congenital abnormalities including transposition of the viscera.

Herzfeld collected 16 cases from the literature, and found that 12 had other congenital abnormalities. These consisted of cleft palate, spina bifida, meningocele, exstrophy of the bladder and vesical fistulae.

Anesthesia. Lambert Rogers carried out his successful operation without any form of anesthetic. Most operators have employed general anesthesia, which is well tolerated by these tiny infants. I have found that local infiltration with 1 per cent novocain, preceded by premedication of one minim of nepenthe, and one grain of chloral hydrate, is highly satisfactory. During the operation the infant is allowed to suck glucose water from a feeding bottle, and if the manipulations are gentle, crying with its accompanying contraction of the abdominal musculature, is avoided.

Treatment. The sooner after birth the operation is undertaken the better the progress. Without operation death from peritonitis usually occurs. An occasional case has survived when treated by conservative measures. Ahfeld's method consists in carefully cleansing the sac and the surrounding skin, reducing the contents of the sac as far as possible under light narcosis and applying alcohol compresses covered by a bandage. Unless, however, the circumstances are extenuating, the more certain method of operative repair is indicated.

Alder collected 72 cases from the literature and found that mortality, when operation is undertaken within twenty-four hours, is 12 per cent, but rises to 66 per cent if operation is done after forty-eight hours.

Aribat, in 1901, cited 160 cases out of which 68 were operated upon with 47 recoveries (69%).

Altpeter, in 1931, tabulated 109 cases since 1900. Ninety-one were operated upon with 69 recoveries (76%).

Fig. 5. Preliminary step in operation for reduction of exomphalos; incision from about 2 to 6 o'clock.

In Gross and Bloodget's series (1940), 20 out of 22 cases were operated upon and 10 survived (50%). These authors showed that the survival rate is inversely proportional to the size of the sac, other factors being constant. Their actual observations were:

Sac less than 8 cm. in diam...	75 per cent survival
Sac. 8 cm. in diam.....	28 per cent survival
Sac over 8 cm. in diam.....	17 per cent survival

They found that in eight cases where the liver was contained in the sac, only two survived.

Until comparatively recently, it was generally conceded that the presence of the liver, or a greater portion thereof, within the sac gave a hopeless prognosis. This gloomy belief has been

disproved by successful operations by Lambert Rogers, Jarcho, Leonard Leys and others.

Operation. An incision is made in the skin a quarter inch from its junction with the sac on the left side. The incision extends from about 2 to 6 o'clock (fig. 5). It is deepened until the peritoneum is reached. This is opened carefully, and, keeping about a quarter inch from the opening, the sac is excised with scissors. Three vessels will be encountered, the two umbilical arteries and the umbilical vein. The umbilical arteries are fairly constant in position, viz. 5 and 7 o'clock; the umbilical vein in cases of exomphalos is displaced upwards and is encountered at one or other side about 3 or 9 o'clock. Knowledge of the disposition of these vessels enables them to be clamped before they are cut. The sac having been removed, we now come to what may be the difficult part of the operation, to wit, the reduction of the viscera into the peritoneal cavity. This follows accepted principles. A hot, moist pack promptly covers any coils which extrude. If the liver or a portion thereof, is outside, it is valuable to bear in mind Lambert Roger's dictum "Reduce hollow viscera first, and the liver last." If it is found that more room is needed, an incision through all layers of the abdominal wall upwards and outwards at 2 o'clock is advised. When reduction of the abdominal contents has been effected, they are kept in place with a moist swab on a holder. With a curved cutting needle armed with a long piece of stout nylon, a purse string suture is inserted through all layers of the abdominal wall, i.e. from the skin to the peritoneum, all the way round the periphery of the deficiency, about half an inch from the cut edge of the skin. It must here be explained that in many cases the abdominal wall in the neighborhood of the exomphalos is peculiar, in that the various layers are fused. The insertion of this purse string is therefore not so complicated as might be expected. If the extension referred to above has been necessary, this is disregarded for the time being. The purse string suture is tightened by steady pressure and at the appropriate time the swab on the holder is removed. It will be a source of considerable satisfaction if, on tying the suture, the abdominal wall comes together, even with considerable tension. If the extension incision at 2 o'clock has been made, this is now repaired by interrupted sutures. Finally, mattress sutures in the skin reinforce the newly formed umbilicus.

Special difficulties. When the liver is difficult to replace, Freshman's method should be tried. He wraps the protruding part of the liver in a hot, moist swab and squeezes it for some moments. This efficiently reduces its size and allows replacement. When it is impossible to reduce the liver, or to do so would require enormous tension, insert the purse string in the skin and subcutaneous tissues only. These are very elastic and will allow the viscera to be covered.

CASE REPORTS

I have treated three cases within the last 4 years.

Case 1. A.B., aged 24 hours; full term, female infant weighing 6¾ lbs. She had an exomphalos 2 inches in diameter, containing small intestine visible through a translucent membrane. The operation was done under a local anesthetic. The contents were easily reduced and the post operative course was uneventful. The infant was well at three months of age and had a smooth scar one inch long. Afterward, because of the war conditions, the child could not be traced.

Case 2. Y.S., aged 12 hours, female, full term infant. She had an exomphalos 3½ inches in diameter, containing small intestine visible through the sac. Operation was performed under open ether anesthesia. The reduction was difficult and twice during the procedure practically all the contents of the abdomen were extruded. Inadequate depth of anesthesia was probably responsible for this difficulty. The patient made an uneventful recovery and was last seen at the age of three months, when she was quite healthy. I learned that she died at home at the age of six months from some respiratory disease, the nature of which was not ascertainable.

Case 3. G., aged 36 hours, male, weighing about 6½ lbs. The infant had passed no meconium since birth, and had an exomphalos about 2½ inches in diameter. The membrane covering the sac was dull white in color and completely opaque. At one point it had necrosed and the mucous membrane of the small intestine was pouting through it. There were two other areas of necrosis but the bowel there so far was intact. The sac was opened under local anesthetic and a very much hypertrophied proximal loop (small intestine) together with a narrow but patent distal loop were found. There was a perforation at the junction of the two loops. In all the areas of necrosis, the coverings of the sac were adherent to the bowel wall and no attempt was made to separate them. The perforation was closed with a catgut stitch, and the bowel reduced after extending the incision. The patient did not pass meconium for three days but finally obliged. A barium enema was given during this period but did not fill the colon. The patient when discharged on the eighth day was passing feces normally and was quite fit. This case is recent and has not yet been followed up.

I wish to express my gratitude to Mr. Hamilton Bailey for great encouragement and suggestions, and for the loan of a diagram; to Mr. Philip Berry, Medical Supt., County Hosp., Chatham, for permission to publish this article; and to Dr. M. Mackenzie for drawing the excellent diagrams.

RÉSUMÉ

L'exomphalos est une condition rare. L'auteur nous donne l'historique de différents cas rapportés dans la littérature. Les aspects cliniques de cette condition sont énumérés et suivis de l'embryologie et de l'étiologie de cette entité. L'opération pour la correction de cet état est décrite. Trois cas de l'auteur sont rapportés. Ces trois cas furent opérés avec succès.

RESUMEN

La hernia de vísceras abdominales en el cordón umbilical es un estado patológico muy raro. El autor, después de estudiar la historia de los casos de que se ha dado cuenta, analiza las características clínicas de este estado y discute su embriología y etiología. Describe a continuación la técnica operatoria para su corrección quirúrgica y da cuenta de tres casos propios operados con éxito.

Свод

Эксомфалос (пупочная грыжа) случается редко. После обсуждения истории доложенных случаев автор дает клинические черты этого условия и обсуждает его эмбриологию и этиологию. Он описывает коррекционную операцию и делает доклад трех случаев из своего собственного опыта, из которых все были успешно оперированы.

REFERENCES

Ahfeld, F.: Der Alkahol bei der Behandlung inoperable Bauchbruecke, Monatschrift Geburtsch. u. Gynek. **10**:124, 1899.
Alder: Quoted by L. F. Watson. "Hernia," 2nd Edition. Henry Kimpton.
Altpeter, E.: Ueber Nabelsschnurbruecke. Kiel University Thesis. 1931.
Aribat, P.: Contributions a l'Etude des Hernias Ombilicales Congenitales, Thésè de doct., Paris, 1900–01.
Berglass, D.: Zür Genese und Therapie der Nabelsschnurbruecke, Arch. f. Gynaek. **152**:214, 1933.
Embom, G.: Der Resposition mechanismus des physiologischen Nabelsbrueckes bei Saugetieren und beim menschen Morpholog., Jahrb. **82**:271, 1938.
Gross, R. E., and Bloodget, J. B.: Omphalocele, Surg. Gyn. & Obst. 520–527 (Oct.) 1940.
Herzfeld, G.: Umbilical Hernia in Infants, Am. J. Surg. **39**:422 (Feb.) 1938.
Jarcho, Julius: Congenital Umbilical Hernia, Surg. Gyn. & Obst. **65**:593–600 (Nov.) 1937.
Kleiner, B.: Zür Frage der Bauchspaltung, Monatschr. f. Geburtsh u. Gynaek. **84**:281, 1930.
Rogers, Lambert: Brit. Jour. Surg. **29**:37–38 (July) 1941.
Leys, Leonard: Brit. Jour. Surg. **30**:168–169 (Oct.) 1942.
Paré, Ambroise: Quoted by J. Jarcho as above.
Smith, F. R.: Incarcerated Hernia into Umbilical Cord in New Born, Bull. Lying-in Hosp., New York **13**:401, 1932.

The Choice of Treatment for Carcinoma of Cervix Uteri

FRANCISCO GENTIL, M.D.
LISBON, PORTUGAL

"A beautiful operation that results in the death of the patient is not satisfactory surgery."
—J. Horsley

THE problem of treatment of uterine carcinoma is one of the most complex, and, as yet, there appears to be no definite trend because we have to consider four types: carcinoma of the corpus uteri, carcinoma of the endocervical canal, adenocarcinoma (3 per cent of the total number of uterine cancers); and finally squamous cell carcinoma of the cervix, which is the most frequent.

There are three different problems, allowing us, when dealing with the treatment of those of greater frequency (i.e., carcinoma of the cervix), to report that it is characteristic of carcinoma of the corpus uteri to be more radio-resistant than is that of the endocervical canal. The reason why I have chosen this topic for our present discussion lies in the following fundamental facts:

(1) My belief as a surgeon that, surgical exeresis is the preferable treatment, and may be carried out with greater chance of success than any other method. We have in our records hysterectomies for cancer of the cervix (Wertheim) with a period of cure of 34 years (!) and we have, during the same years observed but 5.2 per cent of surgical mortality;

(2) The possession of records of 2,046 cases at the "Hospital Escolar de Santa Marta" and at the Portuguese Institute of Oncology, covering the period from 1912 to 1938 inclusive, which have been treated by radium, X-ray and radium combined, or by combined operative and radiologic treatment;

(3) Careful analysis of figures, existing at the Portuguese Institute of Oncology, which enable us to compare the results obtained by irradiation with the data furnished by the operative clinic, all based on histological examinations.

The factors we have just mentioned, as well as a long surgical practice permitting the survey of thousands of cases, the good clinical material at our disposal and the collaboration of specialists, have allowed us to formulate an opinion which is the result of twenty-seven years of study. This analysis has been made after more than 40 years of professional practice and studied objectively after six years from the point of view that operative treatment is the best and surest method in the definite cure of cancer, in most locales, *provided an early diagnosis is made.* Too great emphasis can never be placed on this banal but frequently neglected factor of early diagnosis, which often means the difference between failure and cure.

In the case of uterine carcinoma, diagnosis seems simple. In truth, if the women who report any genital lesion are periodically examined—although there may be no history of hemorrhage—and at any age (we have in our records a carcinoma at nine years of age and another at twenty-six)—as well as women who have had children or those who are over 40 years of age, it is evident that the number of early diagnoses would increase, as proved by Winter.

However, we are not concerned at present with diagnosis but rather with the problem of treatment, for which we are going to make suggestions. Let us then consider which is the ideal treatment for uterine carcinoma and how that treatment should be applied in different localizations, i.e., corpus uteri, cervical canal and cervix. I fear that nobody will agree with me when I affirm that a specialization, whatever it is, is likely to influence the physician's mind; but that is, unfortunately, a generally prevailing truth. This was so apparent that the Health Section of the League of Nations found it advisable to commit the study of this important problem of carcinoma to a group of competent surgeons, gynecologists, radiologists and roentgenologists.

One has to consider also the kind of growth, from the histological point of view, its primary localization, the age of the patient, also the regularity of treatment, the technic and dosage used, conditioning in such a way the whole aspect of the problem that the conscientious deliberation of the physician in each individual case becomes a serious responsibility. One has also to bear in mind that the practice of medicine forms, over a period of time, a background of clinical impressions which are not always confirmed by a cold analysis of gross statistics. This indicates how easily we are led into misconceptions of diagnosis from which errors in treatment have often arisen. I, for my part, think that we must allow time to influence our opinion, which is why I have studied our statistics of uterine cancer, from a more distant period, from 1912 to 1938. Since then, the number of cases has increased yearly and our methods of treatment have been reviewed, but, although greater attention has been given to the matter and consequently better results may be expected, a minimum of five years, according to the rules, must elapse before the results can be published. How often our enthusiasm over a supposed cure has proved to be bitterly disappointing!

The League of Nations (Health Organization—Cancer 67) has issued some rules which Heyman, of the Radiumhemmet, edited; these have been translated into Portuguese by Dr. E. Lima Basto and published under the auspices of the Portuguese Institute of Oncology. The different stages and phases of carcinoma of the uterine cervix are well defined in it, but the interpretation of the same as well as the observation of the patient show that it is often very difficult to classify each case. Moreover, our personal view of the matter has always to be taken into account for we may be led subjectively to form wrong impressions. Therefore, the problem cannot be approached rigidly, but it is hoped that the conclusions drawn from an analysis of our figures, based on thousands of cases and studied after a period of time, are a more reliable and a surer guide for us in our behavior towards each individual case. I am not going to report figures which have already been published in detail in the *Arquivo de Patologia*. There a brief survey shows the reader that, as regards statistics, our Institute is following the same criteria as those established by the League of Nations and adopted by all the cancer prevention clinics.

This enables us to carry on the analysis of such a difficult problem, provided the interpretation of the statistics and of each individual case is made with a sound knowledge of pathological anatomy. Certainly, if we are only but slightly acquainted with the progress and development of each kind of growth, with its spread by the lymphatics and the influence of its early localization,

how are we to consider the best type of therapy? The strict formula:

Stage I — operative or radiologic treatment;

Stage II — indisputably better results with radiation;

Stage III — radiotherapy only; and

Stage IV — palliative treatment alone with, in many cases, no irradiation; has only relative value as a guide in therapeutic procedures, which should be conditioned by clinical knowledge and practice.

Statistics offer then a general basis for investigation but they cannot satisfy the physician, since all cases do not fall readily into a definite classification. The difficulties which obstruct the physician's path are so great that, before making a decision, careful and repeated clinical examinations of the patient are necessary. An example will emphasize this point.

In our records of the First Surgical Clinic—formerly a cancer prevention clinic—we have two observations: Nos. 449 and 4512 of the same patient—the first dated April 7, 1915; the second, April 12, 1928—a period of cure of 13 years, for a carcinoma of the cervix which the cystoscopic examination would have listed as *stage III–IV* and the gynecological as *stage I*. In 1915, surgical intervention was considered advisable and Wertheim's operation (the current name for total abdominal hysterectomy), suggested. These were frequently performed in our Clinic. Before the operation, a catheter was introduced in each of the ureters, as a sure guide in the separation of the parametrium. Bumm's technic, however, proved the uselessness of this procedure. In the case of the patient, No. 449, cystoscopy revealed lesions of the vesical mucosa, the cause of which was attributed to the spread of the carcinoma. Accordingly, the case was classified as of *stages III–IV* and hysterectomy was considered useless. We then decided on electrocoagulation of the cervix uteri such as had been regularly performed since 1912. The lesion healed and the patient was considered as clinically cured as proved by a later cystoscopic examination.

The lesions were due to septic lymphangitis and not to the development of the growth. Despite the healing of the cervix, we decided to perform a hysterectomy following the technic of Bumm. The histological findings (Geraldino Brites) revealed the existence of carcinomatous cells under the scar of the cervix wound which proved that surgical intervention was necessary.

This patient died in our Clinic, 13 years after the operation, from septicemia caused by suppurating angiocholitis, arising from septic cholecystitis with calculi.

She died from angiocholitis but the signs of cure in the uterus were still evident. No spread of the growth nor metastases had occurred (autopsy performed by G. Brites). This period of cure of 13 years is ascribed to the hysterectomy, since examination of the uterus with carcinomatous cells gave us reason to doubt the possibility of a permanent cure without surgery, although our records mention some curious cases of a longer period of cure, but with no guarantee of the absence of tumor cells. This can prove a serious problem in the field of cancer pathology and therapy. At that time, we were mistaken in the classification of the stage of the tumor even as we might have been today.

Electrocoagulation, which modern apparatus has rendered, since the period 1912–1913, a safer and easier surgical procedure, contributed to the healing of the growth; nevertheless, a cancerous nidus persisted which would have shortened the life of the patient, if hysterectomy had not been performed. Cystoscopy is practised today as a routine, in radiotherapy, for the early diagnosis of the invasion of the parametrium by the trigone.

Clinical examination as well as radium therapy should be done by gynecologists exclusively, since the interpretation of the former is difficult, and practice alone

can avoid the causes of failure. The treatment of carcinoma uteri should be carried out only when we have at our disposal the means of performing:

(a) curative surgery (panhysterectomy),

(b) palliative or complementary surgery (ligation of the iliac arteries, extirpation of the glands, extirpation of the presacral plexus, and other kinds of pain-preventing surgery),

(c) roentgentherapy,

(d) radiumtherapy or

(e) diathermy in its different forms. These are the chief resources in cancer therapy and it is with these aids that we have been working and the help of our collaborators—since 1912, and, at the Portuguese Institute of Oncology, under excellent conditions, since 1930.

What do we require then from each of the therapeutic procedures? Let us start with X-ray which sterilizes the neoplastic ulceration before the administration of radium, and by blocking off the lymphatics which tend to diminish or prevent the spread of the growth. It is not assumed that glandular metastases will be cured by these means, since no one could reasonably expect that cancerous glands can be successfully sterilized. The experience we have had with cervical glands (cancer of the tongue) and axillary glands (cancer of the breast) shows that palliative results can only be obtained by means of periglandular sclerosis. Since we know how often, in cases of carcinoma uteri, enlarged glands which are not metastatic are found (as proved by histologic examination), we cannot guarantee the cure of metastatic glands by clinical examination only.

Adenitis arising from inflammation or sepsis diminishes or disappears with roentgen irradiation, but it would be exceptional to find the same results in enlarged glands with carcinomatous metastases, due to the radioresistance of ganglionar metastases and the difficulty in providing good treatment conditions. Is it not proved by the histological examination of the extirpated glands, in cases of hysterectomy for cancer, that even in the borderline of *stage I,* in the surgical cases of early *stage II* and those of *stage III,* with nodular pelvic metastasis, one may find only glandular hypertrophy without metastasis?

This problem of radioresistance has not as yet been solved, since we are still ignorant of what can be obtained through the high voltage radiation of 1 million volts, as well as through the new technics in radium therapy. It is known that the radioresistance of the intracervical adenocarcinomas has been exaggerated; however, statistics have proved that they are susceptible to cure by irradiation in 25 per cent of cases.

The effects of roentgentherapy are also considered a great help in post-radium therapy, as a complement.

Many patients in *stages I* and *II,* some in *stage III,* and a few in *stage IV* are cured by radium irradiation. This conclusion is based on a survey made on 2,046 patients treated by radium from 1912 to 1938. We excluded those who did not receive any treatment, those who could only receive palliative roentgen irradiation and those on whom operation was performed. Fifty-eight cases of isolated carcinoma of the cervix were also treated by radium or X-ray, including Chaoul's low voltage contact therapy. Sixty-three cases with recurrence after Wertheim's operation, were sent from other services; almost all of them were treated by X-ray. Those in *stage I,* according to international statistics, over one-third of the patients have been cured for longer than the five year period. In *stage II,* almost one-third of those who received treat-

ment, are cured; in *stage III,* only 2.5 per cent and in *stage IV,* if no case of cure has occurred among those with whom we have lost contact, there are no cures.

Now, in *stage I,* in comparing the results of radium and surgery, we have to consider them according to the primary localization and the morphology of the carcinoma. In the ulcerating form of *stage I,* 51.6 per cent of the cures are obtained by irradiation. Since this number is higher than that secured through surgical intervention, operation is not advisable, as the risk of surgical death is relatively high. But in the terebrating form of *stage I,* crateriform, which may be easily confused with *stage III* (isolated pelvic metastasis), although neoplastic glands occur only in one-third of the cases—with only 13.2 per cent of cures—the surgical approach (even considering the 5.2 per cent of operative deaths occurring among my patients), brings better results. No definite statement can then be made about *stage I* as to whether irradiation or surgery are dependent on our personal view of the matter or on our own field of specialization. We believe that the ulcerating form of *stage I* is predominantly dependent on irradiation; *stage I* in its terebrating form, crateriform, the nodular form (with only 20 per cent of cures) and the adenocarcinoma, arising from the cervical canal or from an ectropion, should be managed surgically. There is also the vegetating form in which success is more or less evenly balanced, allowing us to make our choice of treatment. It is useless to say that the general condition of the patient will sometimes make operation advisable in some ulcerating or vegetating forms; in the same way, irradiation may be considered advisable as regards some terebrating or nodular forms. Combined radiotherapy—radium and X-ray—is advised for *stage II* in all its forms.

Diathermy is not supposed to cure cancer of the uterine cervix, in spite of its possibilities in helping it. However, healing does not mean cure, as has already been proved. Electrocoagulation alone provides us with better sterilization previous to radiotherapy or hysterectomy. Besides, diathermy prevents post-irradiation sclerosis and constriction of the vagina, as I proved to the French Association for the Study of Cancer, on July 16, 1930 and which is still carried on as a routine procedure at our Institute.

Tripolar diathermy may afford valuable help when carcinoma of the cervix is associated with nearby inflammatory lesions. However, the scar caused by healing of the ulceration must be frequently examined; this will possibly arrest the evolution of a possible neoplastic focus.

Diathermy and electrocoagulation are chiefly of value in the prevention of cancer of the cervix. In 1936, Charles Larkins affirmed in New York that 90 per cent of the patients who go to a physician with cancer of the cervix, die, since they seldom apply for treatment at the beginning of the lesion. That was the situation ten years ago, but publicity and the education of the people have brought about better conditions and, with George Pack, we can say that—on the whole—there is a rate of 25 per cent cure.

Among 18,000 women, on whom electrocoagulation was performed, Hunter, Pembreton and Smith have observed only 33 cases of cancer of the cervix, after ten years, while Chase was able to prove before the Society of Medicine of New York, that, after the age of 38, one woman out of nine suffers from carcinoma of the cervix. At the Portuguese Institute of Oncology, we have

an early average of 500 electrocoagulations of the cervix.

Before irradiation was considered as a method of therapy for uterine cancer, palliative surgery constituted our most valuable help when a hysterectomy proved to be impossible, and hemorrhage and pain were present. Kroenig proved that the ligation of the two hypogastric arteries was free from danger and had no bad effect on nutrition; this operation may be considered an hemostatic procedure. Harting uses this operation for both operable and inoperable cancers. We started by using it as the first stage of hysterectomy but, when we decided to adopt Bumm's technic, we found ligation unnecessary. However, it is still used as a palliative measure.

Some years ago the Portuguese Institute of Oncology started a curious investigation which is being led by Prof. Sousa Pereira; it consists in ligation of the hypogastric arteries and resection of the presacral ganglia combined with irradiation, for cancer of *stages II* and *III,* as it was first performed by H. Eisenover. This is on the basis that an ischemic surface allows radium to have greater power of penetration and consequent destruction of the growth cells. The school of Barcelona, with Conill, considers favorably this therapeutic procedure and holds it in high repute. Nevertheless, time and the number of cases have, as yet, not proved its value. Neither did the experiments conducted at the Portuguese Institute of Oncology confirm its good results, although it is still very early to pronounce a definite judgment on the matter. Besides, radium necrosis in poorly irrigated tumors is a frequent occurrence and that, as every one knows, is likely to prevent a cure.

After all, what are we asking from surgery as a means of cure? We ask a long period of cure, which Stoeckel obtained in 45.8 per cent of surgical cases, with the smallest mortality rate [even reduced to 0 by Chutro (Buenos Aires) in one of his last series]. But these figures are exceptional, since the rate of operative mortality oscillates between 8 and 15 per cent, and may go down even to a lower rate in *stage II.*

After irradiation there have been sudden deaths from septicemia. However, septicemias, pyometritis and deaths from treatment are not likely to occur in institutions where good technic is used. These statements keep within the rules established in the beginning of this report on the different characteristics of *stage I,* since no good results are expected from operation in *stage II* or in the more advanced stages. When the spread of the growth compels us to section the cancerous tissue and to graft the growth in the raw surface there is for the conscientious surgeon no possibility of doubt or even of comparison between the two therapeutic procedures. In these cases, radium and X-ray afford cures which surgery cannot do.

I wish to emphasize that palliative surgery in *stage III* (isolated pelvic metastasis) is likely to be changed, in some cases, to therapeutic surgery, provided laparotomy will show a limitation of the lesion. And, since two-thirds of the glands are not cancerous, we are faced by a *stage I* case, erroneously classified as *stage III.*

Hysterectomy is usually performed through one abdominal incision with Bumm's technic, since this affords the possibility of examining the abdominal cavity and any glandular lesions, and allows a more radical approach than the vaginal technic. It has given us a surgical mortality rate of 5.2 per cent. In the period under review, I have had only one case of vaginal hysterectomy, this being performed because of obesity.

The operation was successful and the patient had a long period of cure.

I have also had a case of extirpation of the cervix for sarcoma in pregnancy with delivery at term and cure, and two cases of amputation of the cervix with cure. Nevertheless, these cases cannot, because of their rarity, influence our opinion in the matter.

We have performed Wertheim's operation with a period of cure of 34 years, but we also have cures effected by radium, a more recent treatment than surgery, lasting a period of more than 20 years. We must stress that surgery gives a somewhat high mortality rate, while radiumtherapy does not cause death.

Our experience, of over 40 years, initially meant surgery for uterine carcinoma. Later we combined operative and roentgenological treatment. After 1912, radium was used in addition to the other treatments, first in precarious surroundings, but now, for 14 years, in well equipped services and with the collaboration of a devoted personnel. All these factors allow us to form an opinion which, although not definitely settled, does permit us to progress on a secure basis.

From our personal observations and from what has been said we believe that, with the help of our collaborators, the fight against uterine cancer can be established on the following principles:

(*a*) The idea of cure in *stage I* must necessarily be instilled into the public mind as well as the assurance of its prophylaxis through the treatment of pre-cancerous conditions. Hence it is assumed that any woman suffering from gynecological troubles must be examined as well as the women who have had children or who have suffered abortion. Only the normal cervix where no uterine or vaginal discharge is observed will leave no doubts. This convinces us of the absolute necessity of periodical gynecological examination for prevention of uterine cancer.

(*b*) When the patient has been examined and a suspicious lesion found and after the Schiller's test, the Chroback and Clark tests have been made, and Hinselmann's colposcopy done, a biopsy, including healthy tissue must be performed. When the lesion is circumscribed and doubtful, electrocoagulation is done and the patient kept under observation. In neoplastic and ulcerating lesions, the cleaning of the ulcer must be thoroughly done by means of X-ray, which is also used for blockage of the lymphatics.

(*c*) Following the pre-radium roentgen irradiation, the patients enter the hospital for radiological treatment, according to the technic and principles already stated in *Arquivo de Patologia*. During the period of radium treatment, the patient is carefully observed—temperature changes noted, repeated blood tests given, any pain or micturition disturbances noted, cystoscopy repeated if necessary for comparison or as a guide in the re-application of radium.

(*d*) Forty-eight hours after radium is applied, diathermy treatment is started, followed after ten days by post-radium X-ray. The observation of the patient must be continued, once a month, for a period of six months; during the three following years, every three months, and, subsequently every six months.

I should now like to call your attention to the vesical and rectal phenomena which are likely to occur after irradiation and should not be mistaken for those arising from the development of the carcinoma. It is in the most advanced forms—those requiring a greater dosage and causing, through the harden-

(Continued on page 455)

Microscopically Verified Success of Pinch Homographting in a Human Case*

F. MANDL, M.D., F.I.C.S. AND N. RABINOVICI, M.D.
JERUSALEM, PALESTINE

FOR decades experiments on homo- or isotransplantation of the skin have been carried out and a practical method of application in human cases has been tried for again and again. Apart from a few cases in which circumstances were of a particular kind (cf. below) they were all failures. It is only the importance attached to this method that has shifted in the course of time. While Lexer [1] (1925) could still say with a certain justification: "The discussion on the possibility of homotransplantation is still in progress although there is no special need for such a method," today Brown and McDowell [2] are right in saying, after skin transplantation in the treatment of injuries and burns has enormously developed: "If the problem could be solved one of the greatest possible advances would have been accomplished."

The fact, however, that skin or layers of skin cannot, up to the present day, be transferred from one human subject to another with a reliable prospect of "taking," although not sufficiently appreciated (Medawar [3]), has received corroboration by the reports on failures published in the literature by a number of authors (cf. ref. 1–21).

In several of these cases, after a "take" of the homograft was noted for a certain length of time, it suddenly melted away. While this has been stressed by several authors (Brown [16], Brown and McDowell [2]), others were deceived by the satisfactory reduction in size of the defect underneath the graft or even its closure which led to the erroneous conclusion that homotransplantation had actually been successful. We ourselves also saw this happen, but very soon detected our error thanks to thorough microscopic examinations. But it was obvious that here, similarly to the case of failure to "take" of full-thickness skin grafts with gradual or rapid sloughing, the covered wound surface showed indications of a more rapid healing and it is not altogether impossible that unknown substances originating from the graft may promote healing ("necrohormones"); but to speak in cases of this kind of successful transplantation would be absurd.

Real success with skin homotransplantation was only reported after the transfer of skin of newborn babies on adults (Schoene,[10] 1912) and further in identical twins. Of the 44 cases of skin homotransplantation reported by Padgett [14] only two were successful, both being carried out on identical twins.

The same negative results as in practice have so far been obtained in animal experiments, although everything has been tried to render possible a successful homotransplantation: vital storing by blocking of the reticulo-endothelial system (Lehmann and Tammann [21]), preparation of the donor by protective substances towards the serum of the future recipient in order to mitigate

* From Surgical Department B of the Rothschild-Hadassah University Hospital, Jerusalem.

his defensive reaction or *vice versa* (Rohde [22]), treatment by blood, serum, plasma, extracts, etc.

Skin transplantation in parabiotic animals was successful as long as the skin tube joining the animals was there. After this communication had been severed the grafts fell off. Splenectomy in the host animal (Carrel) was just as little successful as experiments set up with a view to intercepting the white blood corpuscles and concentrating them elsewhere by artificial abscess formation, thus diverting them from the graft. An increase of the blood supply, locally, by mechanical methods or vasodilator drugs and even the establishment of maximum blood flow by means of cuto-omentopexy (Mandl and Rabinovici [23]) were failures. Also, according to our latest knowledge, identity of blood group is not decisive for the success or failure of homotransplantation of skin.

Naturally, quite a number of theories have been put forward to explain the negative results of skin homotransplantation in the human subject. These have just recently been comprehensively reviewed by Medawar.[3] He distinguishes among (1) The blood group or natural immunity theory, (2) The theory of acquired immunity, (3) The cellular theory according to Loeb [24] or —as would seem more appropriate— the "theory of the different organisms."

None of the reasons forwarded to explain the failures is satisfactory. The question, therefore, has still to be regarded as unsolved; up to the present day it is not clear whether cellular or humoral processes are responsible for the failure of the skin to "take" in homografts. Setting aside the cases in which skin homografts were successful in identical twins, the few successful cases reported are certainly due to faulty observation; according to our own experience which, in the main, consisted in disappointments, we agree with Padgett [14] when he said: "For all practical purposes, homotransplantation of skin may be relegated to the realm of medical mythology."

Quite recently, three reports have been made in the literature dealing with the "taking" of skin homografts in humans, with the purpose of describing and studying permanent healing or to distinguish the latter from a transitory or provisional "taking."

(a) In an extraordinarily exact study, Gibson and Medawar [25] describe how, on the forty-first day after an accident with extensive burns, they covered the large granulating surface with a set of 52 autografts and at the same time with 50 "pinch" homografts taken from the patient's brother. Fifteen days after the first series, another set of 28 pinch homografts was taken from the same donor and again applied on the granulating surfaces. In a continuous series of experiments, with every change of dressing, specimens of the pinch auto- and homografts were removed and subjected to a thorough microscopic examination, while, as a matter of course, the gross aspects of the two types of graft was continuously watched.

Degeneration of the homografts (which, to begin with, did not differ in their behavior from the autografts) began as early as the fifteenth day and was apparent to the naked eye, being complete on the twenty-third day. In the second series of pinch homografts, degeneration of the transplants was already distinct on the eighth day.

The gross changes were paralleled by microscopic signs of degeneration which are very comprehensively described by the authors and illustrated by photographs.

(b) Harris [26] describes a very neglected case of burns in a girl of 12 in

whom, twice, with a certain interval, skin of the child's father was used for transplantation. The thickness of the graft was 0.014 inch (.0356 cm.) and its diameter 10 to 15 cm. Both times the graft is said to have taken. The results are described as excellent, and attributed to the fact that the coagulum-contact method of Sano [27] was used, plasma as well as cell extract being taken once from the girl and once from her father. The nomenclature and the descriptions given in the paper are somewhat unclear and no microscopic findings have been added. The photographs attached to the article are insufficient to form an opinion on the case.

(c) A few references are to be found in the literature according to which the preputiom removed on the occasion of ritual circumcision—which is usually done on the eighth day after birth—has been used for homograft. Ashley [28] described positive results with this method. Favorable results were also reported by Sachs and Goldberg.[29] The authors added photographs showing grafts which, apparently, had taken satisfactorily; in only one case had the graft come loose after a certain time. Microscopic findings—which are the only criteria of survival of a graft—are not available. This method was also tried at this department by Dr. Kook but since microscopic verification is still being awaited, nothing can be said so far about results.

After a number of failures, the following case, which is given in great detail, was the first successful one to show a genuine "taking" of a pinch homograft:

CASE REPORT

The patient, aged 29 years, was admitted on account of an industrial accident (explosion of a gas cylinder) in a state of severe shock. The skin and mucous membranes were pale, he was sweating profusely, his pulse was weak, small and so rapid that counting was impossible. There was hypotension and the extremities were cold.

The patient presented a traumatic semi-amputation immediately above the right knee joint. After blood and plasma administration, amputation *en guillotine* was performed, in the upper third of the thigh.

After the operation, the patient ran a temperature varying between 38 and 39° C. (101.3 and 104° F.), which, however, subsided on the eighth day and remained stationary between 37 and 38° C. (98.6 and 101.3° F.) for a period of 100 days, after which it returned to normal.

On the twenty-first postoperative day, extension was applied to the stump and was maintained for a period of eight days.

Although healing was not bad, grafting was decided upon and was carried out on the forty-fourth postoperative day. The size of the wound was then 8 by 5 cm. (3.14 by 1.96 inches). Granulation was satisfactory and the edges showed slight epithelization.

For grafting, eleven autotransplants of the pinch graft type were used (according to Davis [30]) in the upper and lower portion of the wound while on the central part six homotransplants of the same type were grafted. The grafts were evenly distributed at a distance of 0.5 to 1 cm. from each other. The homografts were taken from another patient (who incidentally was of the same blood group) who was 41 years old and not related to the first patient.

The grafts were fixed to the wound bed by autoplasm and thromboplastin prepared from placental extract according to the method devised by Finkelstein and Zondek.[31]

The first change of dressing was made six days later; the homografts were inspected regularly every two days (for microscopy cf. below). After 43 and 50 days, respectively, the homotransplants were excised, fixed in Zenker's solution and examined microscopically.

Simultaneously with the last excision at the place of the previous transplantation, a second homotransplantation of the same kind was tried. The transplants were taken from the same donor and the same site and trans-

planted on exactly the same spot where the previous ones had been excised, using again the plasma-thromboplastin method. Four days later, when the dressing was changed, they were found completely to have disintegrated. A fibrinous, coffee colored crust had formed instead.

Gross appearance.—Clinically, the behavior of the homografts was not different from that of the autografts; during the entire period that they were watched, the homo-

Fig. 1. Gross appearance of homo-pinch grafts, 43 days after transplantation.

grafts presented no changes apparent to the naked eye (fig. 1). Their color all the time was pink, their shape unchanged, their consistency soft and elastic, they could not be mobilized by pressure. There was neither inflammation nor blistering of the epidermis nor any other local reaction on the part of the host organism recognizable by the naked eye. The only remarkable feature was the starting of epithelization of the wound bed in the periphery in a direction towards the homograft, never the other way round, from the graft to the periphery.

Microscopy of the excised homografts.—The graft has completely integrated into the host organism but is sharply demarcated towards the periphery by a slight lymphocytic infiltration and a barrier of newly formed distended capillaries (fig. 2). The epithelium of the graft is continuous; the dermal papillae normally distributed. At the base, the cylindrical spinous cells of the germinative stratum are irregularly distributed, presenting numerous mitoses.

Underneath the entire length of the base of the epidermis and occasionally penetrating it, slight lymphocytic infiltration of the round cell type and isolated pigment cells are to be seen. The polyhedral cells of the Malpighian stratum are normally distributed and arranged in multiple, regularly stratified layers. There are a few cells with vesicular cytoplasm in a process of cornification. The stratum corneum is also normal in regard to its general structure and architecture.

The boundaries of the epithelium of the graft can easily be made out, owing to the lymphocytic infiltration which begins exactly where the epithelium stops, thus sharply separating the graft from the rest of the wound. Unlike the epithelium of the graft, the newly formed epithelium of the rest of the wound presents no papillary indentations. Lymphocytes as well as pigment cells are equally absent. As shall be seen later, the

Fig. 2. Photomicrograph 50 days after transplantation; graft integrated with host organism but sharply demarcated towards periphery by barrier of lymphocytic infiltration and newly formed distended capillaries.

elastic fibres present at the base of the epithelium of the graft are absent in the newly formed epithelium covering the rest of the wound.

The derma of the graft has a normal architecture and is composed of normal connective and vascular elements. It penetrates deeply into the epidermis in the form of regularly distributed dermal papillae containing a slight degree of round cell infiltra-

tion. The vessels are normal without any sign of engorgement. There is no lymphocytic infiltration nor are there newly-formed capillaries. The connective elements within the graft are also normal. In the dermal papillae and immediately underneath the germinative stratum of the epidermis, they form a dense network parallel with the general direction of the epidermis and consist of delicate elastic and collageneous fibres.

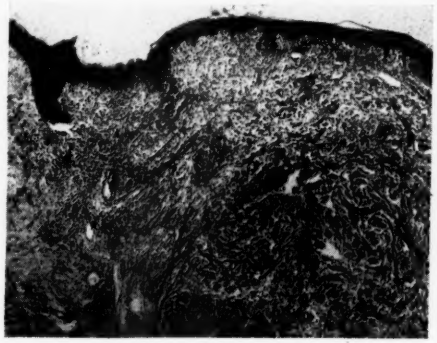


Fig. 3. Photomicrograph (50 days after transplantation) showing connective tissue of graft normal and disposed in thick bundles, in contrast to thin and fine ones of wound bed.

There is a second network underneath and perpendicular to the first consisting of thick bands of collageneous and elastic fibres (fig. 3).

Between these connective elements, there are isolated fibroblasts, lymphocytes and migrating cells of the macrophage type. A few of the hair follicles show a surrounding lymphocytic infiltration.

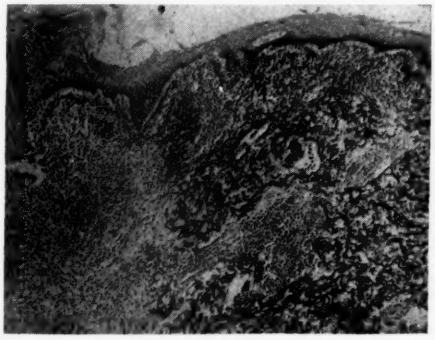


Fig. 4. Shows normal structure of two layers of elastic fibrils with lymphocytic infiltration at border of graft where elastic tissue stops abruptly. (50 days after transplantation.)

Special staining for elastic tissue reveals the presence in the grafts of elastic fibrils

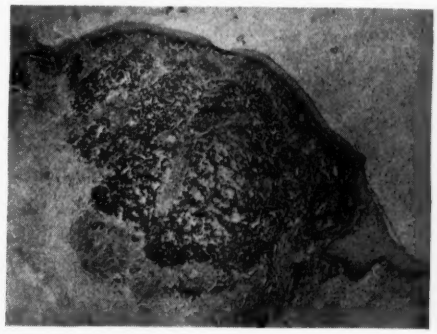


Fig. 5. Shows elastic tissue of normal structure and architectural disposition in graft only, indicating exact shape and limits of graft. (50 days after transplantation.)

richly developed and of normal structure and architectural disposition. In the dermal papillae the elastic fibrils are of a very delicate type and form. Beneath the germinative stratum of the epidermis, a fine network occasionally invades the epidermis between the spinous and polyhedral cells of the Malpighian layer (fig. 4).

Underneath the first, another stratum is to be seen composed of thick, long, undulating fibres irregularly distributed, crossing one another in all directions (see fig. 3). The same fibres are contained in the walls of the large and small blood vessels of the graft and surrounding the hair follicles.

There is no indication of structural changes such as atrophy, granular disintegration or calcar encrustation of the elastic fibres. It is noteworthy that, unlike the connective, collageneous fibres which are met with all over the graft, as well as the wound bed, the elastic fibres are present only in the graft and in an absolutely normal distribution.

They stop abruptly at the periphery of the graft and are not encountered anywhere in the rest of the wound bed.

The demarcation is so sharp that the borders and the shape of the graft can accu-

rately be followed up by the presence of elastic fibres (fig. 5).

DISCUSSION OF MICROSCOPIC FINDINGS

The above findings are in accordance with those described by Unna,[32] Jores,[33] Katsurada[34] and Hass.[35] We believe that the elastic fibres disappear completely in the skin after traumatic injury or in acute or chronic infections, and are equally absent in *granulation tissue, scars* and *keloids.*

Regeneration, if any, is very slow and takes many months. Mechanical crushing does not seriously harm the elastic fibres but they succumb rapidly in areas of inflammatory response. (Katsurada quoted from Hass.) Unna[32] (1896) points out that granulation tissue loses its elastic fibres before it is converted into scar tissue, and Jores[33] (1900) believes that granulation tissue contains no elastic fibres at all.

The presence of morphologically and structurally normal elastic fibres in the grafts only, and their absolute absence in the rest of the wound bed, is an indication of the viability of our grafts and is in complete agreement with the views of the above authors.

At the periphery, the graft is surrounded and sharply delineated by lymphocytic infiltration and a continuous vascular barrier. The lymphocytic infiltration consists of lymphocytes of the round cell type, diffusely disposed, occasionally conglomerated in formations of a follicle-like character. Between them, there are giant cells of the inflammatory type, macrophages and migrating cells. The vascular elements surrounding the transplants are extremely dilated and engorged.

Around the grafts, the epithelium covers a tissue which in general has the aspect of granulation tissue. Dermal papillae are absent and so is lymphocytic infiltration which ceases at the border of the graft. The connective tissue is young and consists of fine collageneous fibres forming a regularly arranged, loose network. Cellular elements of the connective tissue, wandering cells and giant cells of the inflammatory type are more abundant. More richly developed also are the vascular elements with newly formed capillaries and perivascular lymphocytic infiltration. Hair follicles and pigment cells are not encountered in the wound bed, nor is there any trace of elastic fibres among the collageneous ones, either beneath the epithelium or in the vessel walls.

Microscopically, there is, therefore, a marked difference between the histological structure of the graft and the wound bed, characterized by structural and morphological changes and also apparent in the arrangement of the derma, the epidermis, the connective tissue and the vascular elements. The most striking feature is the presence of elastic fibres in the graft, in contrast to their complete absence in the wound bed. The only elements the structure of which is the same in both areas, are the collageneous fibres.

COMMENT

In the course of the years we tried homografts on the most varying occasions, of varying extent and thickness (Thiersch, pinch, full-thick). Attention was always paid to an identity of the blood groups and in a few cases a method similar to the coagulum-contact method of Sano[27] (plasma-thromboplastin method by placental extracts according to Finkelstein[31]); but in no case could a success be recorded. Thus in a severe burn of a newborn child, a Thiersch graft taken from the child's father melted down within eight days. The case described above was the only one to be successful.

We are convinced that here the homotransplantation was a real one for the following reasons:

(1) The six transplanted pinch homografts which could very clearly be distinguished from the eleven surrounding autografts showed, from the first up to the fiftieth day after their transplantation, not even the slightest indication of grossly anatomical changes of a nature such as usually precedes the sloughing of a graft. They were in no way to be distinguished from the pinch autografts.

(2) Microscopic verification of the pinch homografts as real transplants was complete. Changes such as usually occur in unsuccessful transplantations were absent.

(3) The fact that, after the first set of homografts had been removed for microscopic examination, another set of pinch homografts taken from the same donor became rapidly destroyed, is, in our opinion, indicative of a local or general immunity in the recipient against homografts from the same source. Such a degree of immunity is probably more marked after the first "take" has been successful.

In this particular case the reasons why the transplantation of pinch homografts was successful are not known to us. According to our experience we can only say that neither a concordance of the blood groups (although, as a matter of fact, it was only determined afterwards in our case) nor the use of the plasma-thromboplastin method which promotes the sticking of the graft without having any bearing on the intricate immune processes taking place in the skin, was the responsible factor.

In his comments on homografting of adult tissues, Willis [36] enumerates the following factors which might in our case, too, have been responsible for the success of the method; he says that "small pieces are better able to survive" so that experiments with pinch grafts offer better prospects of success than those with full thickness grafts. Further, "blood compatibility of donor and recipient have been thought to be of importance." All the other preconditions enumerated by Willis as essential for a successful "taking" of the graft (such as age of patient, site of implantation, vascularization, physiological "demands" of tissue) played no role in our patient.

We regret, therefore, to admit our ignorance as to the reason why in this particular case skin homotransplantation was successful, and we will have to leave it to chance whether or not this will happen again, particularly as owing to lack of funds and facilities we are unable further to pursue this question systematically.

SUMMARY

The successful "take" of six pinch homografts, after a number of failures, is reported. The grafts were taken from a donor of the same blood group as the recipient; the plasma-thromboplastin method was used. Genuine healing was verified by gross examination as well as microscopically. Microscopic examinations were made after fifty days. The possibility of a microscopic verification of a genuine "take" is discussed. No explanation can be offered as to why success was achieved in this particular case.

SOMMAIRE

L'auteur rapporte un succès de six succès d'homogreffes après un certain nombre d'échecs. Les greffes furent prisent sur un doneur du même groupe sanguin qui le récepteur; la méthode thromboplastine fut employée. La vraie guérison fut vérifiée par l'examen oculaire et aussi par l'examen micro-

scopique. L'examen microscopique fut fait le cinquantième jour après l'opération. La possibilité de la vérification microscopique d'une "vraie prise" est discutée. Aucune éxplication n'est avancée pour expliquer pourquoi on obtint un succès dans ce cas particulier.

RESUMEN

El autor da cuenta de seis homoinjertos cutáneos de pequeño tamaño desprovistos de epidermis que "prendieron" con éxito después de un cierto número de fracasos. Los injertos fueron tomados de un donador del mismo grupo sanguíneo que el receptor. La autenticidad de la cicatrización se comprobó tanto macroscópica como microscópicamente. Los análisis microscópicos se llevaron a cabo 50 días después del injerto. Aquí se estudian las posibilidades de la comprobación microscópica de que el injerto "prenda" auténticamente. No se da explicación por el momento al hecho de que se haya obtenido éxito en este caso particular.

Свод

Доложена успешная прививка шести "щиповых" гомотрансплантатов после многих неудач. Трансплантаты были взяты от донора той же кровяной группы, как и больной; был применен плазмотромбопластиновый способ. Действительное залечение было проверено макро- и микроскопически. Микроскопическое исследование было сделано через 50 дней. Обсуждена возможность микроскопической проверки настоящей прививки. Не дано объяснение успеха в данном случае.

BIBLIOGRAPHY

1. Lexer, E.: Arch. f. Klin. Chir. **95**:287, 1911; Die freien Transplantationen, Editors Enke, Stuttgart, 1919; Arch. f. Klin. Chir. **138**:258, 1925.
2. Brown, I. B. and McDowell: Ann. Surg. **115**:1166, 1942.
3. Medawar, P. B.: Lancet, **30**:10, p. 552, 1943; Bull. of War Med. **4**:1, 1943.
4. Holmann: Surg., Gyn., Obst. **38**:100, 1924.
5. Perthes, G.: Zentrbl. f. Chir. **44**:426, 1917.
6. Eden: Dtsch. Med. Wschr., No. 3, 1922.
7. Takahashi-Miyata: Arch. f. Clin. Chir. 120, 1922.
8. McWilliams: J.A.M.A., **83**:183, 1934.
9. Gatch, W. D.: Bull. Johns Hopkins Hospit. **22**:84, 1911.
10. Schoene, G.: Muenchn. Med. Wschr. **59**:457, 1912.
11. Blair, V. P. and Brown, J. B.: Surg., Gyn., Obst. **49**:82, 1929.
12. May, R. M. (quoted from Medawar).
13. Mauclaire (quoted from Medawar).
14. Padgett, E. C.: "Skin Grafting," Baillère, Tindall & Co., London, 1942.
15. Trusler, H. M. and Cogswell, H. D.: J.A.M.A. **104**: 2076, 1935.
16. Brown, J. B.: Surg., Gyn., Obst. **72**:848, 1941.
17. Graham, E.: Yearbook of Gen. Surgery, 1935, page 50.
18. Coller, F. A.: Surg., Gyn., Obst. **44**:221, 1925.
19. Greeley, P. W.: Ill. M. J. **75**:436, 1939.
20. Bettman, A. G.: Am. J. Surg. **39**:156, 1938.
21. Lehmann, W. and Tammann: Arch. f. Klin. Chir. **138**:17, 1925
22. Rohde, C.: Arch. f. Klin. Chir. **138**:258, 1925.
23. Mandl, F. and Rabinovici, N.: (in press) J. Internat. Coll. Surg.
24. Loeb, L.: Physiol. Rev. **10**:547, 1930; Science **86**:1, 1937.
25. Gibson, T. and Medawar, P. B.: J. Anat. **77**:299, 1943.
26. Harris, H. J.: Am. J. Surg. New Series **65**:315, 1944.
27. Sano, M. E.: Surg., Gyn., Obst. **77**:510, 1943; Am. J. Surg. **61**:105, 1943; Am. J. Surg. **64**:359, 1944.
28. Ashley, F.: Ann. Surg. **106**:252, 1937.
29. Sachs, A. E. and Goldberg, S. L.: Am. J. Surg. N. S. **60**:255, 1943.
30. Davis, J. S.: Ann. Surg. **66**:88, 1917.
31. Finkelstein, M.: Nature, p. 755–202, 1945.
32. Unna (quoted from Hass).
33. Jores (quoted from Hass).
34. Katsurada (quoted from Hass).
35. Hass, G. M.: Arch. of Path. **27**:334, 1939; Arch. of Path. **27**:583, 1939.
36. Willis, R. A.: Austral. and New Zealand J. of Surg. **9**:119, 1939.

Gas Gangrene

Bacteremia and Carbohydrogenic Toxemia

PROF. B. O. C. PRIBRAM
LONDON, ENGLAND

WHEN reading through the reports of extensive work carried out in experimental medicine to clarify the question of toxemia in gas gangrene, one gains the impression that progress is far from being satisfactory; even the principal questions are still under discussion. In an interesting symposium on this subject, in the Royal Society of Medicine, London, in December 1945, prominent pathologists have voiced "honest doubts" as to the very existence of a toxemia in gas gangrene.

Research has been mainly directed toward finding a specific Cl. Welchii-toxin in the blood, which could be tested and applied to the production of an antitoxin serum. The results have been so unsatisfactory that the above critical summing-up can be well understood. However, when one thinks of the highly toxic aspect of the patients and the way they often die, obviously in toxic collapse, the statement is rather surprising.

I cannot help feeling that the clue to understanding the almost unique pathology of infection and death must be found somewhere else. The failure to detect the presumed specific bacterial toxin can be well understood when approaching the problem from a different angle and considering a fact the importance of which has been greatly underrated, namely, *anaerobic bacteremia.*

Almost nothing can be found in text books and monographs about the frequency and significance of these findings. Sometimes only a few old and rare cases are quoted where gas gangrene of the uterus was followed by bacteremia and rapid death. In contrast to this I wish to emphasize that I have good reason to believe that the whole clue for understanding the extraordinary pathology with sometimes surprisingly rapid death, lies in the *bacteremia* and its consequent disruption of the *carbohydrate metabolism.*

Already (in the last war) I have found, in gas gangrene, anaerobics in the circulating blood in about 50 per cent of cases; today with ever-increasing experience in this matter, I can say that anaerobics can be cultivated from the circulating blood *in almost 100 per cent* of all cases of gas gangrene with fatal issue. They are found in a *high percentage* of serious cases which recover. They are *frequently* found in the initial stages of even light cases of superficial, epifascial gas gangrene, where the patient recovers, within a few days.

This positive finding of anaerobics in the circulating blood is by no means due to any special technic which I have applied. They can be cultivated by the simple method of collecting a few cc. of blood in a test tube with sugar-agar.

When the primary site of infection with gas gangrene is removed and under surgical control, the bacilli disappear quickly from the circulating blood. But even a sporadic invasion of anaerobics into the blood stream (which takes place very easily indeed) may have a great

practical bearing which I am afraid has not been sufficiently realized up to now. There are many cases reported in the literature; I have observed three of this kind myself, where careless subcutaneous or intramuscular injection caused gas gangrene infection at the site of the injection.

The opinion generally voiced about such incidents was that obviously the medicine applied or the syringe or needle were not sufficiently sterilized (what "might happen sometimes under war-conditions"). I have always considered this opinion *utterly wrong;* I even once had the opportunity to emphasize this very strongly as an expert witness in a case with legal consequences.

Things may be quite different; I believe the following case gives conclusive evidence of what actually happens:

An infantry man of 20 had been admitted to hospital with a shot wound on the right side of his neck. The small entrance of the missile was found behind the right sternocleido while no exit could be seen. Pharynx and trachea were not injured, there were no subcutaneous emphysema and no suspicion of any deeper local infection. In the night following the admittance, a profuse arterial bleeding took place requiring immediate operation. Exposure showed a shell splinter in the middle of the lumen of the common carotid artery partly checking the bleeding, which otherwise would certainly have been fatal. After closure of both ends with arterial clamps and resection of the damaged and torn part of the arterial wall, end-to-end suture could be performed without great difficulty. The patient was brought into his bed in very good condition and a subcutaneous saline infusion of 500 cc. was given into his right thigh.

Interested at this time in routine bacteriological wound examination, I put the splinter as well as the excised tissue parts into bouillon and sugar-agar. Blood culture also was made from the circulating blood (cubital vein). The anaerobic culture from splinter and tissue was positive; Cl. Welchii could be identified. Also the blood culture proved positive with the same anaerobics. The patient was otherwise in good condition but had an elevated temperature and complained about pain at the site of the saline infusion. He developed a rapidly progressing fatal gas gangrene on his right thigh with general septicemia. There was no clinical gas gangrene in the operative wound.

The remaining saline solution could be examined and was found sterile. The whole infusion apparatus had been taken out of the boiling sterilizer before the infusion. So I think the question of a local infection through the infusion can be excluded.

What, therefore, actually *had* happened was this: The bacilli were introduced into the wound with the shell splinter and, probably with some particles of earth, causing a local contamination with anaerobics. After the removal of the splinter and the surgical cleansing, with all tissues having sufficient blood supply, the wound was apparently well under defensive control. But at the site of the saline infusion, where the tissue had been rendered anemic and damaged to some extent, perhaps a slight hematoma had developed, thus causing a favorable culture medium. Here the anaerobics settled down out of the circulating blood.

Since my eyes have been sharpened by this incident, I have observed quite a few similar cases, one of which might be mentioned.

A man with gas gangrene in his right upper arm could be brought well under surgical control. But three days later, he developed a seriously progressing gas gangrene on his right leg where *no* injury was present but only freezing damage of a minor character.

Can there be any doubt about the settling down of anaerobics *out of the circulating blood* in this area, which was covered with undamaged skin?

Can, on the other hand, there be any

doubt about the pathological significance of anaerobic bacteremia even in cases of a mild local infection? Any damaged tissue, where local hypoxemia has been caused (whether frost, overlong application of a tourniquet, intramuscular infusion or injection, etc., form the suitable medium) where anaerobics from the circulating blood may settle down and cause a new local gas gangrene infection.

Since this observation, I feel very strongly about the rule which I established 30 years ago and which reads: *Never give any subcutaneous or intramuscular injection in case of gas gangrene infection.* Infusions and injections should be given only intravenously in such cases.

The pathology of anaerobic bacteremia works, however, on a quite different scale in cases of *progressive muscular gas gangrene.* How quickly such an uncontrolled gas gangrene infection spreads in the muscle is impressive indeed. Sometimes only a few hours elapse between the discovery of gas gangrene and the fatal ending. The question arises: Are there really specific Cl. Welchii toxins responsible for this rapid destruction of the body, or is bacteremia with its sequelae to blame, or have both factors a certain share?

The effect of toxins at the site of infection can be clearly observed. Hemolysis takes place as well as thrombosis. Hemolysis combined with toxic damage to the capillary walls, causes the characteristic coloration of the skin from red to blue and yellowish brown. Thrombosis interferes with the blood supply and causes blood stasis, edema and local anoxemia of the muscles. Toxins, both hemolytic and thrombotoxins, favor the further rapid spread of the infection and act as real pace makers. But the anaerobics do much more than that when they invade the circulating blood. The anaerobics which I have observed and cultivated in the majority of cases are wild saccharolytes in the first place. They break down the carbohydrate stores of the body, wherever they are, e.g., the glycogen in the liver and also in the heart muscles. They break down to a certain extent also, the sugar in the circulating blood. The higher Bilirubin level in the blood up to the visible jaundice frequently observed, is not the sequel of toxic liver damage but a real *gas gangrene of the liver* in the course of anaerobic septicemia. Such a liver infection is by no means only a rare end stage of the last hours. It can take place as a sequel to an early settling down of anaerobics in the liver in the case of bacteremia already in its early stages.

I quote the following case:

> An infantry man of 29 was admitted to hospital with a diagnosis, first of *catarrhal jaundice,* and, second a gunshot wound through the right calf. The patient died from rapidly progressing bacteremia and progressing gas gangrene in his leg. At postmortem the liver was ashgrey and foamy.

I was able to cultivate bacteria from the liver, heart, etc., in quite a number of necropsies, carried out only five minutes postmortem.

Two *toxemic* features of definitely *non*specific origin are evident in serious cases with general infection, anoxemia and acidosis. Both are due to the rapid breakdown of carbohydrates in the tissue and in the blood. I think the "carbohydrogenic" toxins (carbon dioxide, lactic acid, etc.), diffuse through the system in anaerobic septicemia before any possible proteinogenic toxins.

I quote the following report, where autopsy was performed *immediately* after death on a man who developed a rapidly progressive gas gangrene in his right gluteal muscles.

In the coronary arteries liquid blood was interspersed with a pearl-string-like chain of minute gas bubbles. In the right ventricle there was foamy blood. From the liver and heart muscle, anaerobics could be cultured.

All my observations have given me satisfactory evidence that the process of gaseous transformation is not confined to the locally infected muscles but that it spreads gradually over all glycogen depots, liver, heart muscle, etc., and that it is not a postmortal process, but takes place to a considerable degree while the patient is still alive and is one of the main reasons for his rapid death.

The whole carbohydrate scaffolding of the body is actually set ablaze by the anaerobics, causing rapid breakdown, destruction and dissolution of most of the living tissues up to the last gaseous constituents. Hardly anything in human pathology can be compared with this biological tragedy of a human body, lying actually on a cold pyre and undergoing a destruction, which normally takes place, when he is long under the earth in his coffin! Do we really need in addition some specific or unspecific toxins, histamin-like substances, etc., to explain the pathological features?

The following therapeutic measures, partly directed against the sequel of the living conditions of the anaerobics and partly against those of their saccharolytic activity have been applied as logical according to the preceding:

(1) Drip infusion with *arterialized blood* to fight hypoxemia and also directly aimed against the anaerobics. This drip infusion was carried out by means of a cylinder containing citrated blood together with an oxygen bomb wherefrom a continuous stream of oxygen bubbles was led into the blood. Such an effusion was carried out in some cases for 18 hours and more.

I recommend this method of oxygen-blood transfusion also for other purposes. The effect of such arterialized blood, fully saturated with oxygen, is strikingly better than that of normal venous blood. It is open to discussion whether the effect of this oxygen-saturated blood is only due to the prevalence of oxyhemoglobin or whether some anti-bactericide factors in the leucocytes or the serum are activated or stimulated by the oxygen as well.

The immediate effect of this oxygenization and blood transfusion on the toxic symptoms is indeed dramatic. The patient, previously breathing with the enormous amplitude of coma and being restless and perspiring profusely, calms down, the respiration rate as well as the amplitude drops, cyanosis disappears and perspiring decreases. Observations of such patients are impressive and give, in my opinion, experimental evidence as to the correctness of the assumption that the highly toxic state of the patient is at least *partly* due to *hypoxemia.*

(2) Another experiment as to the importance of toxic acidosis could be made when performing an intravenous infusion of 4 per cent sodium bicarbonate solution. The toxic respiration goes down almost immediately to normal. This second experiment unquestionably confirms the further assumption that acidosis is another factor responsible for the toxic state of the patient. The therapeutic effect was especially impressive in one case which I had considered definitely lost through rapid deterioration of his general state as well as local progression of the infection, in spite of amputation of the infected leg. The condition improved to such an extent that a second operation could be carried out which eventually saved the patient's life.

One has to be very careful in drawing conclusions about therapeutic effects in

gas gangrene; infections are so different in their virulence. Their appearance is sometimes epidemic-like and changes with soil and season, so that any conclusions based on mere statistics are bound to be highly misleading.

In one such epidemic one might have a mortality of 95 to 100 per cent; in another only 25 per cent without changing therapeutic methods. The impression of one carefully-observed case which one considers definitely lost and which is saved contrary to expectation, is sometimes of more value than a comparison of a group of cases from two different periods.

My personal experience with antitoxic serum is too limited for drawing any conclusions. However, recent reports on antitoxic treatment and, alas, as well with sulfonilamides and penicillin, are extremely discouraging. I quote a survey of the observations of H. Conway.*

His conclusions are that antitoxic gangrene serum has proved of no value, either as a prophylactic or in treatment. Nothing could be observed that could be considered an effect of sulfadiazine, either as a prophylactic or a therapeutic. His experience with penicillin was as follows: 30 patients developed clostridial infection or gangrene while penicillin treatment was being carried out as a prophylactic measure. The author considered this observation as convincing evidence that penicillin treatment here is of no prophylactic value at all.

Penicillin was therapeutically employed after radical surgery (50,000 units every 3 hours). No effect on the degree of toxicity, on the course of fever or in the appearance of the wound could be observed. Considering the pessimistic evaluation of the therapeutic means at our disposal, one must say that there is still a long way to go in finding a satisfactory gas gangrene remedy. *Radical surgery* definitely occupies, for the time being, the first place. As an additional help in fighting the toxic state of the patient, both measures mentioned above, i.e., oxygenated blood against the hypoxemia and infusion of 4 per cent of sodium bicarbonate solution against acidosis, have proved of some value.

* *Surgery:* **19**, p. 553 (Apr.) 1946.

CONCLUSIONS

It is unlikely that a specific Cl. Welchii toxin is to blame for a toxemia in patients suffering from gas gangrene. Conditions are fully explained by the bacteremia which exists in practically all cases and by the toxic effect of intermediary and final products out of the broken down carbohydrate stores.

Gaseous transformation of the tissues is not confined to the site of primary infection, but can, through bacteremia, become general and can easily explain the rapid and dramatic course of the infection. The rather frequent incidence of metastasis in gas gangrene to places of damaged hypoxemic tissue finds also its simple explanation in the existence of bacteremia.

The author cites several cases from his personal experience, mostly among war wounded, to substantiate his beliefs regarding the cause of the dramatic course of the condition and the rapid death of these patients.

RÉSUMÉ

Il est peu provable qu'une toxine produite parle Cl. Welchii soit blâmable pour une toxémie surven vue ches des malades souffrant de la gangrène gazeuse. Les symptômes sont dûs à une bactérémie présente dans presque tous les cas et aussi à l'absorption de produits toxiques dûs à la décomposition de carbohydrates contenus dans le corps humain.

La transformation gazeuse des tissus n'est pas limitée au siège de l'enfection primitive, mais peut vue la bactérémie se généraliser, et explique l'évolution rapide et dramatique de l'infection. La fréquense des métastases de la gangrène gazeuse dans les tissus est due à la bactérémie.

L'auteur cite des cas personnels survenant surtout chez des blessés de l'évolution de la maladie et sur sa mortalité rapide.

RESUMEN

Es improbable que pueda culparse a una toxina específica Cl. Welchii por toxemia en pacientes que sufren de gangrena gaseosa. Las condiciones quedan explicadas totalmente por las bacterias que existen, prácticamente, en todos los casos y por los efectos tóxicos de los productos intermedios y finales de una depauperación de los contenidos de carbohidrato.

La trasformación gaseosa de los tejidos no se confina al lugar de la infección original sino que, por medio de las bacterias se generaliza, haciendo de fácil explicación el rápido y dramático desenvolvimiento de la infección. El más frecuente incidente de la metástasis en la gangrena gaseosa en los lugares de tejido hipodérmico dañado halla también su explicación simple en la existencia de las bacterias.

El autor cita varios casos de experiencia personal, principalmente de heridos de guerra, para apoyar su creencia respecto del proceso de la enfermedad y de la súbita muerte de estos pacientes.

Заключения

Не вполне вероятно, что специфический токсин Cl. Welchii является причиной токсемии больных с газовой гангреной. Обстоятельства вполне об'яснимы бактеремией, которая может быть констатирована почти во всех случаях, и токсическим эффектом промежуточных и конечных продуктов разложения углеводородных запасов.

Газовая трансформация тканей не ограничена первичным очагом инфекции, но может путем бактеремии сделаться общей, что об'ясняет быстрый и драматичный курс болезни. Более не менее частые метастазы газовой гангрены к очагам поврежденной гипоксемической ткани также легко об'ясняется существованием бактеремии.

Для доказательства его идей о причине драматичного курса болезни и быстрой смерти автор приводит несколько случаев из собственного опыта, большей частью между военными раненными.

ELEVENTH ANNUAL ASSEMBLY

of the

UNITED STATES CHAPTER

INTERNATIONAL COLLEGE OF SURGEONS

DETROIT, MICHIGAN

Louis J. Gariepy, M.D., General Chairman

Editorials

Surgical Lessons Learned in the Past War

THE past war has advanced the science of Surgery probably fifty years during its relatively short duration. All surgeons are now familiar with the accepted importance of blood plasma, penicillin, the sulfanilamides, tyrothricin and streptomycin. In the crucible of actual surgical experience with war casualties, it was proven beyond doubt that contaminated wounds should receive a minimal of debridement; that viable nerve, muscle, tendon and bone structures should be preserved; and that these wounds, following a light dusting with sterile sulfanilamide powder, should be loosely packed with sterile vaseline gauze. It was axiomatic that no traumatically incurred war wound should be closed, nor attempts be made to heal these by primary intention. The tremendous value of the "delayed primary closure" of such wounds five days following their occurrence, or the "delayed secondary closure" following the subsidence of inflammation and infection, constituted one of the chief contributions of the past war to the science of Surgery.

Such a program, i.e., never immediately closing a traumatic war wound, probably played a major role in preventing anaerobic gas gangrene infections. Counter drainage of extensive wounds was religiously practiced. The prompt use of split thickness skin grafts over the surfaces of large granulating wounds, where the epithelium had been lost, materially shortened hospitalization and made more beds available for the seriously wounded.

This concept of wound treatment resulted in a tremendous saving of manpower, marked shortening of hospitalization and the earliest reutilization of such manpower in former assignments in combat. This, in turn, effected a tremendous saving of officers and enlisted men from evacuation to base hospitals in rear echelons with consequent necessary transportation of additional replacement personnel.

The phenomenally low incidence of wound tetanus, as exemplified in the European Theater of Operations, has once and for all firmly established the efficacy of prophylactic immunization of all military personnel prior to shipment to a war theater. The same is equally true for prophylactic immunization of all personnel against typhus, typhoid and paratyphoid fevers. The practical nonexistence of yellow fever in usually endemic areas where combat operations were in progress, again testifies to its great value. The use of large quantities of blood plasma in forward combat areas immediately to control wound shock was another major contributing factor to the phenomenally low mortality experienced among wounded American personnel.

The value of a simple guillotine am-

putation of extremities, where indicated, with no attempt to close the stump—despite opinions to the contrary—has been proven the safest and best treatment. The advances in vascular surgery, the conservative treatment of traumatic arterial or arteriovenous aneurysms by modifications of the Matas' endoaneurysmorrhapy obviated the necessity of subsequent amputation in large numbers of the wounded. The utilization of tantalum, either in the form of plates to replace cranial defects, or in the restoration of continuity of destroyed arteries was of major importance.

The prevailing dictum in all combat theaters—first treat the patient's shock and do definite surgical treatment only after the patient's condition has reached an optimum of improvement—was another cardinal factor in the amazingly low mortality rate experienced in the American Army. The strange fact that the American Army alone practiced conservative treatment in the handling of either severe traumatic injuries or extensive fractures of the extremities, resulted in far fewer amputations and lower mortality than in any other Allied army. The value of adequate amounts of blood plasma, of dusting with sulfanilamides, of the simple vaseline gauze protective strips and of pressure dressing for severe burns was reflected in the very low death rate from these serious injuries. Prompt and energetic treatment of traumatic pneumothorax and of sucking wounds of the thoracic cavity, resulted in few deaths from these grave complications.

The insistence of the Surgeon General of the United States Army on conservative traction methods for injuries of the long bones and the utilization of skin traction only or the Kirschner wire for skeleton traction, was proven a wise, life saving policy. The simplest methods of handling injuries to the abdominal viscera and avoidance of all time-consuming procedures was again justified. Aside from neurosurgical operations, the dictum that any surgical procedure, even in base hospitals, that took longer than forty-five minutes, should not be attempted except in the exceptional instance, was a most wise program. Exteriorization of injured segments of the large intestine or terminal ilium saved many who would otherwise have died, if more meticulous elaborate operations had been attempted. The liberal use of sulfanilamide powder in wounds and rigid reservation of penicillin for those patients whose lives were actually in jeopardy proved a major contributing factor in saving many lives, as well as in conserving critically low supplies of this vitally important material.

If one were to list procedures in order of their importance in saving the lives of wounded American personnel, they might be classified as follows: (1) blood plasma to control shock, (2) simplest possible surgical operation to arrest hemorrhage, combat infection and promote drainage, (3) immediate immobilization of all severe traumatic wounds and fractures in extremities, (4) liberal use of sulfanilamide powder, supplemented by penicillin when the individual's life was in jeopardy, (5) the principle of never closing primarily a traumatic war wound until all evidence of infection had subsided, whether it took five days or several months, (6) prompt use of split thickness skin grafts if wounds could not be closed without undue tension, (7) lightly packing open all traumatic wounds with sterile vaseline gauze to make such wounds heal from the bottom out, yet at the same time facilitate drainage of infected or serosanguinous material, (8) conservative, "old fashioned" meth-

ods of skin traction or the simplest type of skeletal traction in fractures of the extremities, (9) air evacuation of all serious brain, spinal cord and eye injuries to the Zone of the Interior, (10) the principle of transportation plaster casts for either extensive injuries or fractures of the extremities, (11) universal use of tetanus toxoid, typhus, typhoid and paratyphoid immunizations, as well as yellow fever and cholera inoculations in those theaters where their use was indicated, (12) prophylactic utilization of atebrine in malarious districts, (13) universal chlorination of all drinking water, (14) the wise policies promulgated by the Surgeon General, the Chief Surgeons of the various Combat Theaters and the counsel of their Surgical Consultants, (15) utilization of young and enthusiastic surgeons, whose heroic efforts directed towards the saving of countless lives has received to date too little praise and recognition by the world at large.

Such, in the writer's opinion, were the lessons learned in this past war by those of us fortunate enough to have participated, and which few of us will ever forget. It is hoped that the contributions made by the great number of doctors in uniform will be utilized by their colleagues who remained on the home front to care for the tremendous army of defense workers who in turn, helped to make victory possible.

DONALD C. COLLINS, M.D., M.S.
(Surg. & Path.), F.A.C.S., F.I.C.S.*

---

* Former Lt. Colonel, M.C., A.U.S., Flight Surgeon, Chief of Surgical Services in 166th General Hospital, Surgical Consultant for The Brittany Base Sector of the European Theater of Operations.

(Continued from page 438)

ing of the vaginal walls, difficulty in the secondary filtration—that the phenomena of cystitis and tenesmus, as well as of proctitis with tenesmus will occur. If no errors of technic have been made, these lesions disappear spontaneously within a few weeks.

Finally, as the most extravagant complications, ranging from vesico- and rectovaginal fistulae to the greater frequency of metastases, are imputed to X-ray and radium, I find it superfluous to state what a practice of some thousands of cases has taught us. I shall only say that perforations and fistulae are not more frequent in those cases treated by irradiation than in those in which cancer has been allowed to follow its natural course; there will probably be a greater incidence of metastases—since patients, even when not cured, remain alive during a greater period of time—which accounts for the appearance of metastases, in large numbers.

Let us hope then, that both patients and physicians will be convinced that this problem of cancer therapy is, fundamentally, a problem which Hippocrates had in mind when he affirmed that through lack of attention great harm may be caused.

Sir William Osler*

MONTAIGNE said, "I have only made a nosegay of culled flowers, and have brought you nothing of my own, but the thread that ties them together." The same could be said of these few remarks of mine, given in tribute to one so far greater than I.

The impression received after reading Harvey Cushing's magnificent "Life of Sir William Osler" is that here was a man of prodigious mental power and accomplishment. Among all his interests, two were dominant and transcendent, medicine and literature. In the first he was known for more than a third of a century to students and the whole medical world, and for the second possibly only in lesser degree. Yet his interest and help in more than forty libraries is known; his medical papers, books and lay lectures are outstanding in their field. At the opening of the new building of the Boston Medical Library in 1891, Osler made this statement: "It is hard for me to speak of the value of libraries in terms which would not seem exaggerated. Books have been my delight these thirty years, and from them I have received incalculable benefits. To study the phenomena of disease without books is to sail an uncharted sea, while to study books without patients is not to go to sea at all. Only a maker of books can appreciate the labors of others at their true value. Those of us who have brought forth fat volumes should offer hecatombs at these shrines of Minerva Medica.

"But when one considers the unending making of books, who does not sigh for the happy days of that thrice happy Sir William Browne whose pocket library sufficed for his life's needs; drawing from a Greek Testament for his divinity, from the aphorisms of Hippocrates his medicine, and from an Elzevir Horace his good sense and vivacity?

"For the general practitioner, a well-used library is one of the few correctives of the premature senility which is apt to overtake him. Self-centered, self-taught, he leads a solitary life, and, unless his everyday experience is controlled by careful reading or by the attrition of a medical society, it soon ceases to be of the slightest value, and becomes a mere accretion of isolated facts, without correlation. It is astonishing with how little reading a doctor can practice medicine, but it is not astonishing how badly he may do it. Not three months ago a physician living within an hour's ride of the Surgeon's Library brought his little girl, aged twelve, to me. The diagnosis of infantile myxoedema required only a half glance. In placid contentment he had been practicing twenty years in 'Sleepy Hollow' and not even when his own flesh and blood was touched did he rouse from an apathy deep as Rip Van Winkle's sleep. He had not been a reader, he said, but he was a practical man with very little time."

Osler had a vast knowledge of medicine; the literature of medicine was one of his chief delights. His keen appetite for books enabled him to see many of the finer things of life, and so added to his many other fine attributes, kind-

* Annual Presidential Address, Osler Medical Society, Washington, D. C., also read at Sixth Annual Banquet of Ambulatory Fracture Assn., Chicago, Illinois, October 27, 1945.

liness, personality and a deeper understanding of his fellow man, together with a facility for expressing himself in a way to make him the outstanding man of his times. Dr. Shattuck, in 1919, said: "To no member of its body today does the profession of medicine owe so great a debt; not that humanity is not also deeply in his debt. Jenner or Pasteur has his first mortgage on mankind, his second on men of medicine. With Osler the order is reversed. He has made no profound or fundamental discovery, but no one of our days has, in his life, teaching and example, so radiated, far and near, an inspiration to his fellow physicians. Wide and accurate learning; enthusiasm in the pursuit of truth; a character in which elevation and charm are singularly marked and rarely blended; a personality which wins perforce the love, admiration and respect of all who come within his influence; a kindly eye which sees the good in every man and thus stimulates him to better it; these are the main threads woven into the fabric of his beautiful life. Who that meets him, who that reads his essays and addresses, in particular, does not come forth or rise with renewed strength and hope to the service of his fellow man; a better soldier in the Medical Corps of the Divine Army?

A tribute from a mother whose child was a patient of Osler's gives us an insight into the feelings that could be aroused by this great physician. She said: "To have been a patient of Sir William Osler in your youth was to have obtained an almost impossible ideal of what a physician could be. . . . As he passed about, gallant and debonair,with a whimsical wit that left the air sweet and gay, with an epigram here and a paradox there, tickling the ribs of his colleagues, none felt him frivolous: there was a point to his rapier for all he played with the button on. The deep, sad eyes of his soul watched a little cynically the light humor of his mind. It was not necessary for him to be sensitive to a social atmosphere, because he always made his own atmosphere. In a room full of discordant elements he entered and saw only his patient and only his patient's greatest need, and instantly the atmosphere was charged with kindly vitality, everyone felt that the situation was under control, and all were attention. No circumlocution, no meandering. The moment Sir William gave you was yours. It was hardly ever more than a moment, but there was curiously no abrupt beginning or end to it. With the easy sweep of a great artist's line, beginning in your necessary and ending in your necessity, the precious moment was yours, becoming wholly and entirely a part of the fabric of your life. He made you respect his time, but he also respected yours. If he said, 'I will come at two', and the hands of the clock pointed to ten minutes after, you knew that he could not come. If that rare thing happened—a broken appointment—he never failed to send a few lines of explanation. He safeguarded his patient from all annoyance. To be sure, you could not luxuriate into floating reminiscences in his company; your expansions about your family and friends and temperament were not for him—that the nurse had to bear. I think he was always a little sorry for the nurse. One other thing he safeguarded, and that was your purse. If a conscientious secretary sent a bill, it had to be a very moderate affair.

"With his patients he recognized at once the thing or characteristic that concerned him and them; and for the rest, whatever was uncongenial or un-

attractive he put from his mind and prevented any expression of it. A pose or an attempt at a serious chatter about unessentials was intolerable to him. But he was as merciful as he was masterful, and from the very poor and the genuinely afflicted he would even have borne being bored.

"Such telling love, such perfect confidence were given him that he could do what he liked without causing offense. Three times in my life I have seen him, when in consultation, smash the attending physician's diagnosis and turn the entire sick-room the other way about; but he left the room with his arm about the corrected physician's neck, and they seemed to be having a delightful time. The reason for this was perfectly evident; every physician felt himself safe in Sir William's hands. He knew that he could by no possibility have a better friend in the profession; that if, with the tip of his finger, Sir William gaily knocked down his house of cards, he would see to it that the foundation was left solid; and no one would contribute so many bricks to the new edifice. . . . He was one of those who having great possessions, gave all that he had. For myself, I may say that every moment he gave me shines out, illuminating the long years of my life.

"Subtle in temperament, direct in character, the brilliant mind and soaring spirit were unchallenged, because, under the surface of the gay man of the world, lived the Saint. It is when a man touches other people's lives that you know whether he brings life or death or nothing. Where that swift spirit has gone I do not know; but I know that to those he cared for on earth he brought life. They will look back and remember, and will thank God and take courage."

Osler gave an address to the first class of the Nurses Training School at the Johns Hopkins Hospital which is a beautiful thing and gives us an insight into his fine mind and his understanding and kindness; "In one of the lost books of Solomon, a touching picture is given of Eve, then an early grandmother, bending over the little Enoch, and showing Mahala how to soothe his sufferings and allay his pains. Woman, 'the link among the days', and so trained in a bitter school, has in successive generations, played the part of Mahala to the little Enoch; of Elaine to the wounded Lancelot. It seems a far cry from the plain of Mesopotamia and the lists of Camelot to the Johns Hopkins Hospital, but the spirit which makes this scene possible is the same, tempered through the ages by the benign influence of Christianity. . . . Here we learn to scan gently our sister woman; judging not, asking no questions, but meting out to all alike a hospitality worthy of the Hôtel-Dieu, and deeming ourselves honored in being allowed to act as its dispensers. Here, too, are daily before our eyes the problems which have ever perplexed the human mind; problems not presented in the dead abstract of books but in the living concrete of some poor fellow in his last round, fighting a brave fight, but sadly weighted, and going to his account 'unhousel'd, disappointed, unaneled, no reckoning made'. As we whisper to each other over his bed that the battle is decided and Euthanasia alone remains, have I not heard in reply to that muttered proverb, so often on the lips of the physician, 'the fathers have eaten sour grapes', your answer in clear accents—the comforting words of the prayer of Stephen? . . . Useful your lives shall be, as you will care for those who cannot care for themselves, and, who need about them, in the day of

tribulation, gentle hands and tender hearts. And happy lives shall be yours, because busy and useful; having been initiated into two of the three mysteries of the Great Secret—that happiness lies in the absorption in some vocation which satisfies the soul; that we are here to add what we can to, not to get what we can from, Life; and the third—is still a mystery, which you may or may not learn hereafter."

A lesson we can draw with benefit to ourselves is that here was a man who preached and practised the humanities of medicine, and, as Dr. C. Jeff Miller has so well expressed it, the most characteristic aspect of American civilization today is the trend toward standardization. American Medicine has become infected with the same virus. We have standardized our hospitals and our medical schools, and our patients are in all respects the better for it; we have standardized our medical and surgical therapeutics and our patients are in many ways better for it. But we are in danger of standardizing ourselves and them and we are the worse for that, for there is a limit which we have about reached. It would profit us and not lessen our scientific efficiency to be more personal and more human in our relationships; to regard as something more than cases and symptom-complexes the ailing humanity who turn to us for aid. For the care of the sick implies more than the use of the knife, the prescription of drugs or the employment of systems of therapeutics. There is a relationship between doctor and patient which cannot be charted or diagrammed. It awakens pity and sympathy and kindliness on the part of the one and begets faith and hope and trust in the other. This is not inconsistent with accurate diagnosis and scientific treatment. The modern medical student is turned out on the world excellently versed in all the medical sciences, considerably less versed in the medical arts, and totally unversed in the treatment of patients as anything but "cases" to be handled by rule of thumb. Ailing humanity cannot be so handled; body and soul cannot be separated for purposes of treatment. They are one and indivisible. Mankind's eternal cry is for release; the physician must answer it with something better than a test tube or a faultless technic. The cure which really means the care of the sick, the relief of suffering, the salvation of life, these are the high aims of the medical profession.

Stephen Paget, kindliest of philosophers, says that practice is science, but science touched with emotion. The best physician is he who leaves behind him a saucerful of the milk of human kindness. One of the greatest physicians who ever lived, as distinguished for his beautiful courtesy as for his surpassing scientific skill, did not think it belittling to give it in full measure. Sir William Osler never left a sick room without leaving renewed hope behind him; it was his kindliness as much as his therapeutics that wrought the benediction of healing. His life is a portrait of the perfect combination of scientist and humanist. Osler often quoted these lines from Cowper:

Knowledge and wisdom, far from being one,
Have oft-times no connexion—knowledge dwells
In heads replete with thoughts of other men;
Wisdom in minds attentive to their own.
Knowledge is proud that he has learned so much;
Wisdom is humble that he knows no more.

CUSTIS LEE HALL,
M.D., F.A.C.S., F.I.C.S.

Salvaging Medical Education in the Philippines*

BEFORE the war, there were three medical schools in the Philippines all located in the City of Manila—the oldest, the College of Medicine of the University of Santo Tomas, a Catholic institution; the youngest, the Afable College of Medicine, a private institution; and the leading school, the College of Medicine of the University of the Philippines. The first two were closed during the Japanese occupation but the last, the government school, was permitted to function and only forced to close for a short time during the first few months following the country's liberation.

I propose to discuss briefly the rôle of this school, the only medical college in the Far East given recognition by the Association of American Medical Colleges, in the medical education set-up in the Philippines.

HISTORY AND PHYSICAL PLANT

The College of Medicine was an outgrowth of the educational system instituted throughout the country by the Philippine Commission, the members of which were appointed by the late President McKinley during the early period of American occupation. The movement looking toward the establishment of this school started at the second annual meeting of the Philippine Medical Association in 1905 where the proceedings demonstrated the great need of supplying physicians to the people. Statistics then showed that there was one physician to each 21,209 population or to each 430 square miles of territory. In 1939, this ratio was reduced to one physician to each 4,409 population or to each 32 square miles of territory.

The buildings of the school consisted of a main building of reënforced concrete three stories high and two annex buildings of four stories. The school was opened on June 10, 1907.

The Philippine General Hospital which was the teaching institution for the school was of reënforced concrete, planned on the pavilion system and originally accommodated 350 patients. It was opened on September 1, 1910.

With a government appropriation of $1,000,000 in 1938, new additions were made in the surgical, medical, obstetric, pediatric, gynecological and eye, ear, nose and throat wards besides the already-built animal house, the pavilion for experimental surgery, a repair shop, the media kitchen and the city morgue. Additional class rooms and offices were also provided. There was a three-story Dispensary or Out-Patient Department provided with offices, examination and treatment rooms, laboratories and elevators.

Also with a government appropriation of $200,000 in 1938, a Cancer Institute later named Institute of Physical Therapy was created as a unit of the hospital for the care of patients suffering from cancer and for the study and investigation of the same. Again in 1938, a government appropriation of $50,000 made possible the opening of post-graduate courses and fellowships in medicine. This was predicated on the need for continued education for the medical practitioner if he is to render optimum service to his patients. The

* Read at the Tenth (Victory) Annual Assembly, United States Chapter, International College of Surgeons, Washington, D. C., December 1945.

sum needed annually for the continuation of this new activity was included in the budget of the College of Medicine as recurrent appropriation. Hence the establishment of the Post-Graduate Medical School.

CLINICAL FACILITIES

The free beds of the Philippine General Hospital and the clinical material of the Dispensary or Out-Patient Department and the clinical and laboratory facilities of the Institute of Hygiene were under the technical control of the Faculty of the College of Medicine. Clinical instruction in dangerous communicable diseases such as cholera, diphtheria, plague, small-pox, etc., was given in San Lazaro Hospital, a unit of the Bureau of Health. The Quezon Institute, an institution for the treatment of pulmonary tuberculosis, also Gota de Leche, an institution for the feeding and care of abnormal and underdeveloped children, were also available for clinical instruction.

The Philippine General Hospital was a large, well-equipped, concrete pavilion building of 827 beds for the care of acute and chronic diseases. Of these, 741 were for free patients and available for clinical instruction; viz., 166 medical, 202 surgical, 30 gynecologic, 162 obstetric, 57 pediatric, 51 for diseases of the eye, ear, nose and throat, 18 for emergencies, 8 for physical therapy and 47 for nurseries. Besides these facilities, the hospital offered excellent clinical material in its free dispensary where an average of 1,000 patients were treated daily.

Library facilities consisted of 6,021 volumes and 1,032 pamphlets. It had sets of the "Index Medicus," "Quarterly Cumulative Index," "Quarterly Cumulative Index Medicus" and the "Index Catalogue" of the United States Surgeon-General's Library at Washington, D. C. About 172 medical periodicals were received regularly. Besides, there were donations of rich collections from several members of the Faculty and prominent clinicians. The United States Public Health Service of Washington, D. C., continuously sent their publications to this Library. This was supplemented by the rich resources of the Scientific Library of the Bureau of Science.

ADMISSION TO THE FIRST YEAR CLASS

Students qualified for admission to the first year class were required to have (1) satisfactory completion of a standard four year high school course or its equivalent; (2) satisfactory completion of the two-year preparatory medicine course given in the College of Liberal Arts of the University of the Philippines or its equivalent. The course as described had an acceptable equivalent as follows:

1. English Composition and Literature—The usual introductory college course of six semester hours or its equivalent.
2. German, French or Spanish—A reading knowledge of one of these languages was required. The ground covered at least 12 semester hours.
3. Physics—Eight semester hours required of which at least two must be laboratory.
4. Chemistry—Twelve semester hours required of which eight are for inorganic chemistry (including qualitative chemical analysis) and four for organic chemistry.
5. Biology—Eight semester hours required either in general biology or zoölogy or four semester hours each in zoölogy and botany but not in zoölogy or botany alone.

6. Social Sciences — Six semester hours.

In addition to the foregoing requirements, the applicant must possess a good moral character, high scholastic standing and submit to a personal interview with the Committee on Admission. The Dean of the College acted as Chairman of this Committee.

ORGANIZATION OF INSTRUCTION

The curriculum was organized under eleven departments:

1. Anatomy (including neuro-anatomy, histology and embryology)
2. Physiology (including biochemistry)
3. Pathology and bacteriology
4. Pharmacology
5. Hygiene (including parasitology)
6. Medicine (including dermatology, neurology, psychiatry, roentgenology, therapeutics, tropical medicine, medical bibliography and preparation of articles for publication)
7. Surgery
8. Pediatrics
9. Obstetrics
10. Ophthalmology, Otology, Rhinology and Laryngology
11. Gynecology (including legal medicine)

The course of study extended over five years, including the fifth or intern year.

The work during the first two years was mainly confined to the fundamental sciences of medicine, the time of the student being largely devoted to laboratory work. During the first year, this consisted of work in anatomy, histology, embryology, neuro-anatomy, physiology and biochemistry. During the second year, it consisted of pathology, bacteriology, parasitology, pharmacology, physical diagnosis, surgical anatomy, principles of surgery and minor surgery.

During the third and fourth years, the time was largely devoted to the various clinical branches in the Philippine General Hospital and its free Dispensary.

The work in the fifth year consisted of one year rotating internships including out-patient service and correlation courses in anatomy, physiology, biochemistry, parasitology and pharmacology. The rotation consisted of four months in medicine, two in surgery, and one month each in the other clinical departments with two months of an elective, whereby the interns might work in any department or departments of their choice.

In general, the interns were required to take complete clinical histories, including physical, laboratory and X-ray examination, operative findings and technic, if any, and daily observations and end-results, including necropsy findings which they were required to attend, verify and report.

FACULTY, METHOD OF TEACHING AND RESEARCH

There were 152 in the faculty in 1941, many of them having studied in medical colleges in the United States and Europe. The Dean, the Assistant Dean, the Secretary of the College and all heads of departments were foreign trained; many others had similar training. And every year the College sent fellows for further studies to this country and abroad.

Teaching was done by means of bed-side conferences, demonstrations, discussions and, mainly, study of the patient. The lecture system was discouraged. Autopsy was required on all patients dying in the wards. In the laboratories, the students worked out

their problems, then held conferences under teacher direction. With 152 members of the teaching staff for 534 students (in 1941), it is not hard to visualize that the teaching method was productive of much good by encouraging student self-education under close and good supervision.

Special mention may be made of the type of conferences. The monthly staff conference consisted of presentation, analysis and revision of clinical records, of casualties including deaths, infections, complications, unimproved patients and, anything closely related to the clinical work of the hospital. This staff meeting was characterized by a generous spirit of "give and take"; knowledge was pooled for the benefit of all present and particularly for the patient; "find the facts, filter the facts, focus the facts, fix the facts and face the facts fearlessly."

There was also a clinical staff conference every Saturday where interesting cases were presented and discussed by members of the clinical and the laboratory departments. In no other conference was the correlation between the fundamental sciences so well emphasized.

Another important conference was held every Wednesday for all members of the staff. This consisted mainly of correlation between the clinical and pathological findings of unusual, interesting or complicated cases.

RESEARCHES

The monumental work and researches of Strong and Flexner on bacillary dysentery were conducted in the laboratories of our medical school. Studies on parasitic diseases like malaria, schistosomiasis and hetero-phidiasis; the anemias, deficiency diseases like beriberi, yaws and leprosy, especially the last, have attracted the attention of the scientific world. It is not hard to understand why the Rockefeller Foundation always sent fellows to the Philippines and appointed Filipino scholars to carry on investigations in tropical diseases, hygiene and preventive medicine; there is also the Leonard Wood Memorial Foundation to establish leprosaria to study the prevention and cure of leprosy. Studies on local Philippine medicinal plants and abaca fiber as a surgical suture material have not been neglected. The fight against pulmonary tuberculosis was carried on at the famous Quezon Institute. All these things and little beginnings were accomplished with the limited equipment and resources at our command.

Dr. Fred C. Zapffe, the secretary of the Association of American Medical Colleges, following a five week inspection of the College of Medicine in 1941, said, "I did not expect to find what I did. I unhesitatingly say that the College of Medicine is deserving of full recognition on all counts by the Board of Higher Education of the University of the State of New York. I recommend full registration of the College of Medicine of the University of the Philippines."

DIFFICULTIES, COMMENTS AND RECOMMENDATIONS

But the misfortunes of war claimed the Philippines. The medical school and the teaching hospital became battlegrounds. The school buildings were completely destroyed; the hospital almost totally ruined. The priceless collection of hospital records, the library and all physical equipment were completely burned. The clinical records are an irreplaceable loss.

From the debris of destruction, the medical school was opened again last

August and the hospital much earlier. There are classes in the third, fourth and fifth years. Manifestly, first and second year classes had to be deferred for lack of facilities and equipment.

How can we salvage the medical education set-up we have so conscientiously built and which we have so pitifully lost? Salvaging could be done in diverse ways. But two are simple and submitted herewith.

The first is the proposal to reserve annually even only ten of the six thousand odd residency positions or fellowships or assistantships in the U. S. for postgraduate instruction. These ten positions may be filled by able Filipino physicians in line with the government policy of sending fellows and scholars to pursue advanced studies in this country. These scholars would take care of teaching our students and the profession when they should have returned to the Philippines. The stand taken by one American professor in refusing to give a residency position to a Filipino physician because he believed that his duty first was to train American physicians, is *an outrage, unfair and un-American.* It is not representative of altruistic and friendly America. Knowledge is the patrimony of mankind; it must never be restricted by geography, citizenship or convenience!

The second proposition consists of our appeal throughout the country for donations of books, journals, reprints, equipment, instruments, anything that can be used in medical instruction. We appeal to the Rockefeller Foundation to resume sending their men to the Philippines for research investigation and appointing Filipino scholars to the Foundation to pursue advanced studies in the United States. We appeal to the American Foundation for the Eradication of Leprosy to resume its activities in the Philippines in connection with original and research studies in leprosy. We appeal to the Barbour Scholarship Committee of the University of Michigan to resume appointing deserving Filipino women for advanced studies in the basic and social sciences. We appeal to all institutions, foundations, pharmaceutical entities, to help us once again in our search for truth and knowledge. *This appeal comes from the only country and the only substantial population under the American flag that suffered a prolonged and lengthy invasion in defense of American sovereignty.* We sacrificed everything, including our medical education, to preserve our common ideals of freedom, liberty and democracy.

The International College of Surgeons, as a world-wide teaching school for the advancement of the science and art of surgery in all its branches, stands committed in honor to lend every effort and extend a helping hand to any surgeon or group of surgeons anywhere to facilitate postgraduate education through clinics, conferences, special courses, seminars, personal communications and the like. It believes in the just reward of merit and condemns prejudice and the arbitrary restriction of merit. It upholds broad-minded internationalism and discourages bigoted nationalism. It stands for one, strongly united surgical world. With its commanding influence, it is in a vantage position to help in salvaging medical education in the Philippines.

BENVENUTO R. DIÑO, M.D., F.I.C.S.
Lieut. Colonel, Phil. Army

(Tabular addenda to the above material will be found on page 478.)

ELEVENTH ANNUAL ASSEMBLY

OF THE

UNITED STATES CHAPTER
INTERNATIONAL COLLEGE OF SURGEONS

October 20 through 23 inclusive

1946

BOOK-CADILLAC HOTEL — STATLER HOTEL

MASONIC TEMPLE

Detroit, Michigan

Among the speakers will be

Mr. Hamilton Bailey of London; Prof. D. J. Bitschai of Alexandria, Egypt; Dr. W. Wayne Babcock and Dr. Harry Bacon of Philadelphia; Dr. Charles Gordon Heyd of New York; Dr. Albert A. Berg of New York; Prof. Dr. Alejandro Ceballos of Buenos Aires; Prof. Dr. David Raul De Sanson of Rio de Janeiro; Prof. Dr. Francisco Graña of Lima, Peru; Drs. Karl Meyer, Raymond W. McNealy and J. P. Greenhill of Chicago; Dr. Stewart W. Harrington and Dr. Wm. Carpenter MacCarty of the Mayo Clinic; Prof. Dr. Arnold Jirasek of Prague, Czechoslovakia; Dr. Richard Overholt of Brookline, Massachusetts; Dr. John H. Mulholland of New York University and others. (See preliminary program.)

SCHEDULE OF EVENTS

Sunday, October 20, 1946.

9:00 A.M.	Registration at the Statler Hotel.
9:00 A.M.	Executive Council Meeting (U. S. Chapter).
2:00 P.M.	Board of Regents Meeting (U. S. Chapter).

Monday, October 21, 1946.

8:30 A.M.	Registration, Masonic Temple.
8:30–10:00 A.M.	Operative Clinics, Detroit Hospitals (see bulletin).
10:00–12:00 Noon	Clinical Pathological Conference and Round Table Discussions.

Tuesday, October 22, 1946.

8:30 A.M.	Registration, Masonic Temple. Exhibits open.
9:30–12:00 Noon	Scientific Program at Masonic Temple.
12:00– 1:30 P.M.	Luncheon and Visit to Exhibits.
2:00– 5:00 P.M.	Scientific Program at Masonic Temple.
8:00 P.M.	*Convocation*, Masonic Temple.

Wednesday, October 23, 1946.

8:30 A.M.	Registration, Masonic Temple. Exhibits open.
9:00–12:00 Noon	Scientific Program at Masonic Temple.
12:00– 1:30 P.M.	Luncheon and Visit to Exhibits.
2:00– 5:00 P.M.	Scientific Program at Masonic Temple.
8:00 P.M.	*Assembly Banquet* (informal), Book-Cadillac Hotel.

Convocation Speaker—Ambassador Grew.
Banquet Speakers—Admiral Nimitz, Surgeon-General McIntyre and Dr. Fishbein.

The Diagnosis of Thyrotoxicosis

ULYSSES GRANT DAILEY, M.D., F.A.C.S., F.I.C.S.*
CHICAGO, ILLINOIS

THIS paper embodies twenty-five years' experience with goiter patients in private and clinic practice, largely among Negroes. It is essentially clinical. Problems of etiology, pathogenesis and pathologic physiology are referred to only in passing.

The terms "thyrotoxicosis," "toxic goiter" and "hyperthyroidism" are here used interchangeably. While they refer to the same symptom complex, they are not exactly synonymous. "Thyrotoxicosis" describes the constitutional state associated with disturbance of thyroid physiology due to some unknown stimulus. Thyrotoxicosis is a broadly inclusive term which is noncommittal as to causation and pathogenesis. "Hyperthyroidism" implies that the symptoms in toxic goiter are due to thyroid overfunction, with overproduction of the normal hormone. Hyperthyroidism connotes a *theory* as to the pathologic physiology at work but does not describe the resulting constitutional state. "Toxic goiter" is the all inclusive term used in the classification proposed by the Committee on Nomenclature of the American Association for Study of Goiter. The possibility of using these terms interchangeably is in keeping with the inexactness of our present knowledge of the subject.

Classification of hyperthyroidism as primary or secondary is warranted by differences in clinical course and response to treatment. Primary hyperthyroidism, variously referred to as exophthalmic goiter,* Graves' disease or Basedow's disease, and less currently as Parry's or Flajani's disease, has the clinical aspects of a specific entity. Secondary (or nonspecific) hyperthyroidism, on the other hand, comprises a heterogeneous group of conditions in which the syndrome of hyperthyroidism may not be the dominant feature. The toxic factor is superimposed on preexisting goiter. In secondary hyperthyroidism, the onset is more insidious than in "exophthalmic" goiter (primary hyperthyroidism). The thyrotoxic syndrome is usually incomplete, activation is less pronounced and ocular signs are inconspicuous or absent. Visceral complications are common, response to iodine is less dramatic and surgical treatment is generally less satisfactory from the standpoint both of cure and of surgical mortality.

In any type of goiter, including cancer of the thyroid, there may at some time in its history be evidence of accompanying toxicity. The tendency of nodular goiter, even when apparently nontoxic, to show low grade or dormant toxicity is not well enough known. In many cases, manifest toxicity develops either after a lapse of time or incident to malnutrition, hardship, emotional shock, disease or the strain of an operation. The evolution of Plummer's adenoma with hyperthyroidism is an example.

The hypothesis that abnormal instead

* From the Department of Surgery and the Thyroid Service of Provident Hospital, Chicago.

* The use of "exophthalmic goiter" as an inclusive term for primary hyperthyroidism should be discontinued, since exophthalmos is absent in more than half the cases.

of merely increased thyroid secretion is responsible for certain types of the disease, has been for several years a subject of debate. The idea was advanced to explain atypical cases, such as those in which stigmata of both hypothyroidism and hyperthyroidism exist in the same individual. The term "dysthyroidism" was coined to express this concept. Some observers feel that so-called exophthalmic goiter is a dysthyroidism and that toxic adenoma exemplifies pure hyperthyroidism. The theory of dysthyroidism, however, has not served to clarify the etiology of thyrotoxicosis.

The discovery of a thyroid stimulating hormone in the pituitary has provided a definite addition to the knowledge of functional thyroid disease, but it likewise has failed to throw much light on the riddle of thyrotoxicosis.

THE HYPERTHYROID PATIENT †

The syndrome of hyperthyroidism, as exhibited in exophthalmic goiter, is one of the most striking clinical pictures in medicine; when fully developed it can be recognized at a glance. On the other hand, it is sometimes difficult to determine with certainty whether a patient with goiter is or is not thyrotoxic.

The patient with typical exophthalmic goiter is apt to be a young woman, slender, hyperactive and wide-eyed. French writers, with their bent for graphic description, have called the familiar stare *l'oeil dramatique* and *l'oeil tragique*. In the reception room or ward this patient is conspicuously busy, writing, reading or sewing; or if not actually busy, is aimlessly restive. The typical hyperthyroid is a wide awake person, not feeling the desire for sleep until long after the customary hour for retiring. Evidence of hyperactivity is often seen even when the patient is asleep.

It is a striking fact that as a rule these patients are not complainers. When asked how they feel, they usually answer "Fine!" The "nervousness" which appears early in the course of the disease is objective. While many patients with hyperthyroidism are excitable and some are explosively emotional, in my material these have not formed the majority. In spite of the obvious objective nervous features, persons with thyrotoxicosis are among the most reasonable with whom the physician has to deal.

The patient often seeks medical attention on the advice of relatives or friends who have noticed the changed attitude before the patient herself has realized that anything is wrong. Presently, however, the early sense of exhilaration is counterbalanced by an unaccustomed weakness. The patient could "move mountains" until she sets out to do so; then she realizes to her surprise and disappointment that she can scarcely brush away a molehill. Muscular weakness shows itself in numerous ways, but particularly in a tendency of the legs to "cave in at the knees" when the patient steps down, as in descending stairs or stepping off a curb (de Calve's sign). Minor exertion causes fatigue, shortness of breath, quickening of the heart beat and a sensation of pounding in the chest.

† [1] Much discussion has been indulged in as to the existence of a certain type of physical and mental makeup back of the development of hyperthyroidism. The now obsolescent term "habitus" covered this hypothetical status. Graves' constitution, elaborately detailed by the late Alfred Warthin, was generally accepted but later rejected by the majority of clinicians who have expressed themselves. Warthin's description actually was that of the early hyperthyroid patient and not of a hyperthyroid type. I used to feel that hyperthyroidism developed only in individuals of more complex mental organization. Later I concluded that it was the early mental stimulation characteristic of the disease after its establishment, that led to this impression. Nevertheless it is difficult to escape the belief that there is a constitutional predisposition, since only a special group reacts by becoming thyrotoxic upon the impact of provocative factors which have no such effect upon thousands of others.

Incident perhaps to advancing muscular weakness, in many cases a general tremulousness appears. This tends at first to be objective. In one case advice was sought by the husband, who stated that his wife had suddenly begun to have violent tremors incident to marital relations. These proved to be the first manifestation of severe exophthalmic goiter.

Intolerance to heat seems a minor complaint, yet it is an important element in the thyrotoxic syndrome. Often the patient does not think about it until the physician inquires; that she replies that in the coldest weather blankets are a bother.

In spite of a sharp appetite, there is loss of weight. This may occur with startling rapidity; a loss of 30 to 40 per cent within a few weeks is not uncommon.

Constantly overstimulated, the hyperthyroid patient is easily startled or disturbed, even in the midst of her protestations of well-being. The environment in which so many of our patients must live is conducive to frustrations. A certain number develop psychotic complexes which may blur the clinical picture. The diagnostician must become familiar with these if he is to avoid overlooking incompletely developed or atypical cases. Often it is difficult to decide which of the two, the psychosis or the thyrotoxicosis, is the basic element of the case.

From a practical standpoint, there are at least three approaches to the diagnosis of hyperthyroidism, all of them important. The *first* is thorough mastery of the signs and symptoms which make up the syndrome, together with an estimate of their relative weight in diagnosis and their approximate chronologic place in the natural course of the disease. The *second* is thorough familiarity with the various guises in which the disease appears; it is here that most mistakes occur. The *third* approach is through study of the diseases involved in differential diagnosis.

SYNDROME OF THYROTOXICOSIS

The symptoms comprising the syndrome of thyrotoxicosis, roughly in the order of their appearance and diagnostic weight, are as follows (this list is modified from Plummer [3]); (1) mental activation, (2) tachycardia, (3) heart consciousness or palpitation, (4) muscular weakness and fatigue, (5) tremor, (6) "goiter" (this may be the first sign, but its presence is not positively diagnostic and its absence does not rule out thyrotoxic disease), (7) loss of weight in spite of ample intake of food, (8) ocular signs, including exophthalmos, (9) heat intolerance, (10) vasomotor disturbances of the skin including sweating, flushing and dermographism, (11) anorexia, nausea, vomiting, diarrhea, jaundice, (12) changes in pigmentation, (13) pressure symptoms (hoarseness, dysphonia, dyspnea, dysphagia, cough) and (14) laboratory evidence.

1. *Mental Activation.*—Plummer stated that mental stimulation is the earliest manifestation in all types of hyperthyroidism. Study of case histories and observation of many patients during the transition from apparent health to hyperthyroidism have left no doubt in my mind that this statement is correct. Even nonspecific and apathetic forms of the disease, in which the early signs are so easily overlooked, are ushered in by this phenomenon. It is often noticeable to the acute observer before the patient is aware of illness. The clinician who recognizes the disease in its earliest stages may do so with this as the sole presenting symptom. The student can-

not be too strongly impressed with its significance, for its absence in a borderline case tends to throw doubt on the diagnosis of toxicity.

2. *Tachycardia.*—In well developed hyperthyroidism, pulse rates of 120 to 140 or even higher are usual. However, a rate as little above normal as 80 or 90, if it is observed under basal conditions, must be considered suggestive of thyroid toxicity until ruled out by clinical and laboratory investigations. This slight acceleration may be the first sign noticed, since minor degrees of mental stimulation are easily lost on the average observer. However, heart block and other types of cardiac arrhythmia may neutralize the value of the pulse rate as a diagnostic sign.

It is hardly necessary to call the attention of practicing physicians to the observation that most women at the first visit show an increase in the pulse rate. This must be taken into account in evaluating tachycardia.

3. *Heart Consciousness.*—Heart consciousness or palpitation may follow closely the onset of tachycardia. More often, however, it appears later in the disease, when all the other signs, including tachycardia, are pronounced. An early appearance of palpitation may mean that the patient is of the neurotic type, regardless of the thyrotoxicosis. Also, it warrants control examinations to rule out neurocirculatory disorder.

4. *Muscular Weakness.*—As stated earlier this also is an early sign. It is present in thyrotoxicosis of any type, but is particularly noticeable in the specific form. Its presence, in conflict with the patient's ambition, brings it into sharp relief in the clinical picture.

5. *Tremor.*—This is customarily included among the first four or five important signs of hyperthyroidism. In no active case is it absent. Yet it may be present in other conditions, for example alcoholism, Parkinson's disease and addiction to tobacco. In contrast to the tremor of these conditions, that of hyperthyroidism is usually fine, requiring elicitation. In very bad cases, however, tremor may be the dominant feature, involving the entire voluntary muscular apparatus. As a positive sign, its importance is often exaggerated. Nevertheless, if tremor of the outstretched fingers cannot be observed, a diagnosis of hyperthyroidism must be considered doubtful unless other evidence is overwhelming.

6. *Goiter.*—While some enlargement of the gland is present in nearly all cases of thyrotoxicosis, any large series will contain a number of instances in which there is no enlargement that can be discovered without systematic examination. Usually the increase in size is accompanied by a firmer, somewhat rubbery texture of the gland, which to the experienced examiner is highly suggestive and may clinch the diagnosis when better-known signs are absent or equivocal. In several cases of established hyperthyroidism the most careful palpation revealed no abnormality in size or consistency of the gland.

The value of local examination of the thyroid gland is not properly appreciated by many practitioners. Inspection, palpation and auscultation should be routine but are especially important when the goiter is not prominent and the diagnosis of toxicity is in the balance. Elsewhere I have described my own method.[4]

In the case of well developed goiter, roentgenograms, anterior, posterior and lateral, should be taken to determine the presence or absence of (*a*) tracheal deviation and compression, (*b*) calcification in the thyroid body, (*c*) substernal extension and (*d*) enlargement of the

thymus gland. Roentgenograms of the entire chest should be made to rule out intra thoracic goiter, which may be situated as low as the diaphragm. Occasionally a parathyroid tumor may account for an enlargement in the upper mediastinum; in one of our cases the finding of metastatic lesions in the lungs led to establishment of the malignant nature of a nodule in the thyroid gland.

Decalcification of bones as seen in X-ray films is characteristic of long-standing hyperthyroidism. This change may appear fairly early; in several instances it helped to confirm the diagnosis.

7. *Weight Loss.*—Loss of weight when the intake of food is ample is a usual accompaniment of active, untreated hyperthyroidism. A thyrotoxic patient in remission may gain weight, but in the absence of forced feeding and iodization this is exceptional.

8. *Ocular signs.*—Various estimates have been published as to the proportion of patients with hyperthyroidism who have exophthalmos. Although the figures have run as high as 60 to 70 per cent, the percentage in our experience is less than 50. Prominent eyes in persons otherwise normal have often aroused a false suspicion of thyroid disease.

Many patients with well-developed hyperthyroidism, on cursory examination show no conspicuous ocular signs, but practically all will be found on closer scrutiny to have at least one of these. Probably 80 per cent will exhibit widening of the lid spaces; stare (Wernicke's or Dalrymple's sign) and/or lidlag (Von Graefe's sign). A dozen or more eye signs have been described in connection with thyrotoxicosis, but the two mentioned here, together with weakness of convergence (Moebius' sign), are, by all odds, the most constant.

Exophthalmos as part of the picture of thyrotoxicosis is ordinarily bilateral. Whenever unilateral exophthalmos is present, a retro-ocular lesion must first be ruled out.

9. *Intolerance to Heat.*—Hyperthyroid patients always complain when heavy clothing or heavy covering is forced on them in cold weather. If a person suspected of having thyrotoxicosis complains of cold, the diagnosis must be considered doubtful. The sign is therefore practically pathognomonic.

Fever is rare in patients with toxic goiter. Its discovery should be the signal for exhaustive search for hidden foci of infection. Hyperpyrexia is an accompaniment of crisis and is probably associated with hepatotoxemia.

10. *Vasomotor Disturbances of the Skin.*—These consist of warmth, sweating and flushing. A diagnosis is sometimes possible, or is at least suggested, when the patient is seen for the first time and the clinician grasps her hand or takes her pulse. The warm moist feeling of the skin is characteristic. The experienced examiner will distinguish between this and the hot, dry skin, or the hot skin with coarse diaphoresis, of other illnesses accompanied by fever, as well as the cold, clammy skin of the neuropsychiatric patient. Flushing is of diagnostic interest in the case of light-colored skins. It is inconspicuous in dark persons, yet physicians experienced in treating colored people learn to detect it even in deeply pigmented skins.

11. *Anorexia, Nausea, Vomiting, Diarrhea, Jaundice.*—These symptoms are exceptional. Usually they occur late in the course of the hyperthyroidism. There is, however, a type of onset characterized by their appearance, which will be referred to later.

12. *Changes in Pigmentation.*—These

have received little emphasis in textbooks and in the literature, but in my experience, largely with colored people, they are of definite diagnostic interest. A generalized increase in skin pigmentation is the rule. A light skin becomes swarthy, a swarthy skin becomes brown, a brown skin becomes black and a black skin acquires a characteristic denser, sooty blackness. I am confident of an affirmative reply in at least 85 per cent of cases in which, while taking the history, I ask about darkening of the skin. The color tends to return to normal with improvement after treatment. Pigmentation of the eyelids (Jellinck's sign) has been observed occasionally. Several years ago Plummer described a peculiar patchy pigmentation on the median aspect of the arm just above the elbow observed in patients with toxic goiter. We have confirmed this finding in several of our cases.

13. *Pressure Symptoms.*—Vocal cord paralysis without clinical signs is not uncommon in goiter. The thyroid enlargement which is associated with the primary or specific form of hyperthyroidism is ordinarily not massive; consequently gross pressure symptoms, such as hoarseness, dysphonia and dysphagia, while they do occur, are less frequent than in nodular goiter. A slight, wheezing cough from pressure on the recurrent nerve without conspicuous thyroid enlargement may lead the unwary to suspect pulmonary disease.

14. *Laboratory Evidence.*—Estimation of the basal metabolic rate is a necessary part of the management of hyperthyroidism. While the rate closely parallels the clinical course of the disease, certain fallacies and limitations of this test should be borne in mind. It must be emphasized that tests should be made under strictly basal conditions, that technical errors must be accounted for and that several tests should be made before treatment is begun. Since the norm varies roughly from minus 10 to plus 10, the rate considered independently of clinical signs may mean almost nothing. As the clinician's experience increases, he depends less and less on the basal metabolic rate, yet none would advocate that the metabolism machine be discarded. Finally, it should be recalled that other conditions may be associated with elevation of the basal metabolic rate. These include fevers, pregnancy, cardiac decompensation, essential hypertension, the leukemias, pernicious anemia and acromegaly. However, I have never seen a case with a true rate of plus 40 or more which turned out to be other than thyrotoxicosis.

The Goetsch [5] test was employed routinely in our earlier work. In this test, 0.5 cc. of 1:1,000 solution of epinephrine hydrochloride is injected subcutaneously. In a person with hyperthyroidism, there follows a sharp rise in pulse rate and blood pressure. However, a similar reaction occurs in some normal persons. Because of the sensitivity of many hyperthyroid patients to epinephrine, the test must be applied with caution, if at all.

Lymphocytosis and minor degrees of leukopenia are fairly constant in hyperthyroidism but are of little diagnostic value. Since the use of thiouracil has become an accepted treatment of thyrotoxicosis, the value of complete blood counts has greatly increased, because of the necessity of checking possible destruction of granulocytes.

Study of long-standing hyperthyroidism should include tests of liver function, but the value of such tests for *diagnosis* is academic.

The blood cholesterol content is usually diminished, but because it often is within normal limits in the presence of

minor grades of toxicity, it usually cannot be relied on as a diagnostic aid.

Barr [6] recently recommended tests for creatin in the urine as a help in borderline cases:

> The abnormality in creatin metabolism has been sufficiently constant to justify the use of spontaneous creatinuria and creatin tolerance tests as diagnostic criteria in cases which offer difficulty in differentiation between hyperthyroidism and psychoneurosis. This has been especially useful since not infrequently the creatin defect has been evident when the basal metabolic rate is within normal limits. The tests have also been helpful in studying patients whose symptoms have not been satisfactorily controlled by thyroidectomy. Here again the creatin excretion may be excessive during periods when the basal metabolism rate is in the rather wide limits of normal.

Shorr and Richardson,[7] on the same basis, proposed as a test giving the patient a small quantity of creatin hydrate. The hyperthyroid patient will retain less than the normal person, as evidenced by recovery of creatin in the urine.

MODES OF ONSET

The usual onset has been described. Manifestations of cerebral stimulation are conspicuous. The onset may be gradual and mild, with periods of spontaneous remission, or abrupt and severe, with death within a few months. Stare is present, but it must be repeated that exophthalmos and conspicuous enlargement of the thyroid are not a necessary part of the clinical picture.

Here must be mentioned latent hyperthyroidism. This was observed more often when physicians were less thyroid conscious than they are now. Many so-called latent cases were simply mild cases overlooked. Occasionally toxicity developed when the patient was operated on for another lesion. For example, several years ago a patient was operated on by a colleague for fibroid tumor of the uterus. The operation was easy, but death occurred on the third day with the patient in what was apparently a thyroid crisis. The presence of hyperthyroidism had been unrecognized at the time of the operation and was discovered only incidentally by a consultant just before death. Study of the thyroid gland post mortem proved the cause and nature of death. Since this experience we have been more thyroid conscious and have appreciated the importance of eliminating thyroid disease before undertaking elective surgical treatment of other disease.

There are a number of less frequent types of onset which I shall describe briefly.

1. *Well Developed Exophthalmos and Conspicuous Diffuse Enlargement.*—Occasionally exophthalmos overshadows all the other symptoms. There may be little rise in the metabolic rate. Observation of such cases has led several writers [8] to refer to "exophthalmic goiter with and without hyperthyroidism." The implication, in my opinion, is false. There is no exophthalmic goiter without hyperthyroidism. Exophthalmos and thyroid enlargement may coexist without clinical toxicity, but this is not exophthalmic goiter. Exophthalmos, goiter and clinical thyrotoxicosis not infrequently occur with a normal metabolic rate, as stated. This fact, however, does not justify the concept, "exophthalmos without hyperthyroidism."

The notion has been advanced, particularly by Means,[9] that patients with excessive exophthalmos but with only mild toxicity should not have thyroidectomy performed but should be treated medically with desiccated thyroid and iodine. This small "subspecies" (5 per cent according to Means) is thought to

represent the thyrotropic (pituitary) rather than the thyrotoxic (thyroid) influence.

2. *Minimal Objective Evidence of Overstimulation: Predominance of Cardiovascular Abnormalities.*—The many "thyrocardiac" patients, who consult the physician because of "heart trouble," show minimal mental activation and may or may not have obvious goiter. Cardiovascular abnormalities are conspicuous, comprising tachycardia, irregularity of heart action, precordial distress, palpitation, dyspnea and threatened or actual decompensation. The thyroid origin of the complaints may have escaped recognition for weeks or months. It is scarcely necessary to mention that thyroid disease should be ruled out in all heart cases.

Heart disease of thyroid origin is the most hopeful of the various types of cardiovascular disease. The possibility of prior or coincident cardiac disease of other nature must be appreciated, or confusion in diagnosis, treatment and, particularly, prognosis will occur. For example, the patient may have had rheumatic heart disease long before his present complaint appeared. Hypertensive heart disease is another not uncommon complication. The simple expedient of taking the blood pressure routinely while keeping in mind its characteristics in hyperthyroidism will help to reveal whether or not such complications are present. In primary hyperthyroidism, as in aortic insufficiency, the pulse pressure is invariably higher than normal. The systolic pressure is rather high, from 130 to 180, while the diastolic is apt to be from 70 to 40. A reading of about 150/65 is average. When hyperthyroidism has been definitely established and the reading is 160/90 or 190/110 a complicating factor must be present.

3. *Pronounced Neuropsychiatric Manifestations.*—These may appear in the hyperthyroid patient, but when they do they are usually independent of the thyroid disease. The physician has to distinguish between the patient with a functional psychoneurosis and a highly emotional hyperthyroid patient. The latter rarely complains of being "nervous." When a known hyperthyroid complains unduly of "nervousness" it will usually be found that he or she was psychoneurotic to begin with and that the two conditions are coincidental. Rarely the thyrotoxic patient may present a major psychosis. In one instance in our series the two diseases were thought to be coincidental. However, thyroidectomy was followed by apparent cure of the mental disturbance.

4. *Symptoms of Hyperthyroidism During the Menopause.*—It is especially important to clarify the clinical picture when hyperthyroidism appears during the menopause. Manifestations based on the latter should be carefully isolated and treated before the last word is pronounced concerning the thyroid disease.

5. *Gastrointestinal Symptoms.*—The following case report is typical of those in which gastrointestinal symptoms predominate:

> Mrs. A. W. C. was admitted to the hospital with generalized abdominal pains, nausea and vomiting. The referral diagnosis was gallbladder disease. The patient had been under treatment for thirty-six hours before the possibility of hyperthyroidism was considered. Once the suspicion arose, it was easy to unmask the thyrotoxic state. Then, because of incessant vomiting, iodine was administered by proctoclysis, 60 drops in 2,000 c.c. of tepid water. Within twenty-four hours there was complete relief from the gastrointestinal symptoms. Further clinical and laboratory investigation confirmed the diagnosis of thyrotoxicosis, and later thyroidectomy resulted in cure.

Patients with obvious clinical jaundice are extremely toxic, and severe damage

to the liver may be presumed. The prognosis is ominous. In all very toxic patients, the icteric index should be determined. Recognition of subclinical jaundice by means of this test is useful in prognosis and makes possible the most effective therapy.

Laboratory studies are particularly important in cases of thyrotoxicosis ushered in by gastrointestinal symptoms.

6. *Hyperthyroidism in the Aged, Including "Apathetic Hyperthyroidism" (Lahey*[10]*).*—There was only one well marked case of this type in our series:

The patient, a colored woman aged 55, who appeared to be older, was sent up from the South. There had been a long, undiagnosed illness, characterized by loss of weight, tremor, heat intolerance, a generalized increase in pigmentation, drowsiness, fever, nitrogen retention, obvious hypovitaminosis and cardiorenal insufficiency. There were no ocular signs. When finally the basal metabolism was measured, high figures were obtained (plus 65, 70 and 65). After preparation, operation was done in three stages. The patient left the hospital improved, but died a year later, presumably of cardiorenal disease.

7. *Clinical Hyperthyroidism with Low Basal Metabolic Rate.*—A therapeutic test with iodine is a practical means of arriving at a correct diagnosis. If the case is truly one of hyperthyroidism, the metabolic rate will fail to minus figures, with a corresponding improvement in clinical symptoms.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis need merely be summarized.

Diabetes mellitus, in common with hyperthyroidism, is associated with loss of weight in spite of a good appetite. Also, many thyrotoxic patients have traces of sugar in the urine. The differential diagnosis is not difficult, however, once the possibility of thyrotoxicosis is considered.

When there are cough, loss of weight, slight fever and sweats, pulmonary tuberculosis may be suggested, particularly in view of the fact that in this disease there may be a slight elevation of the basal metabolic rate due to fever. X-ray examinations combined with tests of the basal metabolic rate and a review of the evidence will render the differential diagnosis clear. Coëxistence of the two diseases is not rare.

Neurocirculatory asthenias and psychoneuroses are often confused with thyrotoxicosis. Not only may the hyperthyroid patient be a highly neurotic person, but hyperthyroidism may be associated with a variety of psychoneurotic manifestations. While the diagnosis is not always easy, it invariably can be established. Heat intolerance, warm moist skin, increased metabolic rate and high pulse pressure, will indicate thyrotoxicosis. Certain patients will require psychiatric consultation, but observation and a careful history should enable the first examiner to decide whether or not thyroid disease is present.

SUMMARY

In a three dimensional consideration of the diagnosis of hyperthyroidism, the following factors may be considered:

1. The signs and symptoms which make up the syndrome, in the usual order of their appearance and diagnostic importance, are, mental activation, tachycardia, heart consciousness or palpitation, muscular weakness and fatigue, tremor, goiter, loss of weight with ample intake of food, ocular signs, heat intolerance, vasomotor disturbances, gastrointestinal symptoms, changes in pigmentation, pressure symptoms and certain laboratory evidence.

(Continued on page 482)

The Detroit Assembly

The Eleventh Annual Assembly of the United States Chapter of the International College of Surgeons will be held this year in Detroit, Michigan, from October 20th to October 23rd inclusive. Headquarters will be at the Statler and Book-Cadillac Hotels in that city and at the Masonic Temple. The Scientific programs and the Convocation will be held in the Masonic Temple; the Assembly Banquet which closes the gathering will be at the Book-Cadillac. Scientific and Commercial exhibits will be on view at the Masonic Temple.

Registration will be held on each day of the Assembly. On Sunday, the 20th, those attending may register at the Statler Hotel at 9:00 A.M.; on Monday, at the Masonic Temple at 8:30 A.M. and 1:30 P.M.; on Tuesday and on Wednesday at the Masonic Temple at 8:30 A.M.

The exhibition booths will be open on Monday afternoon at 1:30 and all day both Tuesday and Wednesday from 8:30 onwards.

On the morning of Monday the 21st from 8:30 to 10:00, operative clinics will be held at seventeen Detroit hospitals, at which time opportunity will be afforded to those attending the Assembly to observe modern diagnostic and operative procedures and technics by outstanding surgeons. Included will be demonstrations in gastric, thoracic, biliary, intestinal, genito-urinary and plastic surgery; also in the various specialties such as ophthalmology, otolaryngology and gynecology, together with the modern treatment of burns and fractures and the modern uses of wire in surgery.

As one of the great industrial centers of the country, Detroit is unusually well equipped with hospital facilities, so that the specialists in their respective fields will be able to command excellent conditions for demonstrating the newest in instruments, methods and skills.

Following the operative clinics, from 10:00 A.M. till noon, the Clinical Pathological Conference will be held and a Round Table discussion session will be conducted by members of the Faculty of Wayne University. Following this, luncheon will be served to the visiting surgeons at the various Detroit Hospitals.

During the four Scientific Program sessions of the Assembly, on Tuesday and Wednesday, papers on the widest variety of surgical subjects will be presented by an imposing list of speakers, many from foreign countries. Among the visiting foreign surgeons scheduled to participate are the first President of the College, Dr. Arnold Jirasek, Head of the Department of Surgery at the University of Praha, Czechoslovakia; President-elect, Professor Dr. Francisco Graña, under whose able guidance the recent Fifth International Assembly of our College was held in Lima, Peru; Mr. Hamilton Bailey, noted surgeon and author of London; Professor Dr. Jacob Bitschai, member of the Board of Trustees, and eminent urologist of Alexandria, Egypt; our genial co-worker and devoted Vice-President, Professor Dr. Herman de las Casas, from Caracas, Venezuela; our distinguished colleague and member of the Board of Trustees, Professor Alejandro Ceballos of Buenos Aires; and from Rio de Janeiro, the noted otorhinolaryngologist, Dr. Raul de Sanson, and others.

For the names of those whose work has been of great importance in their

respective fields and who are scheduled to present papers, readers are requested to consult the advance program printed on page 465.

The Convocation of the Assembly on the evening of Tuesday, the 22nd, promises to be the most solemn and brilliant that has ever been held. The membership of the College has nearly doubled in the past year; a very large class of candidates is to be inducted. In addition, the program committee has been most fortunate in being able to obtain, as the featured speaker of the evening, the Hon. Joseph C. Grew, formerly United States Ambassador to Japan, who is sure to have a message both timely and interesting for a group so internationally-minded as our College.

All those who attended last year's Assembly in Washington, D. C., will recall with pleasure the delightful program provided by the committee for the Banquet on the final night of that gathering. Even greater pleasure and relaxation are in the offing for this year's Banquet, which will occur on the evening of Wednesday, the 23rd, at 8:00. Highlighting a carefully-chosen schedule of events will be addresses by three figures of both national and international importance, Admiral Chester W. Nimitz, Surgeon-General Ross T. McIntyre and Dr. Morris Fishbein of the American Medical Association. Other diversions of special interest will also be offered. For the benefit of the ladies who plan to attend this event, the committee calls attention to the fact that dress will be "informal."

The committee in charge of arrangements for the entire Assembly is headed by Dr. Louis J. Gariepy as General Chairman; and includes Dr. C. D. Brooks as Chairman and Regent of the Program Committee with Dr. E. G. Martin as Co-Chairman; Dr. C. W. Husband, Housing Committee; Dr. C. L. Straith, Scientific Exhibit Committee; Dr. E. G. Martin, Publicity and Press Relations Committee; Dr. W. A. Chipman, Registration Committee; Drs. E. F. Purcell and W. J. Cassidy, Convocation Committee; Dr. W. D. Ryan, Banquet and Entertainment Committee; and Dr. W. E. Johnston, Motion Picture Committee.

Mesdames Chas. W. Husband, L. J. Gariepy and C. S. Ratigan are acting as Co-Chairmen of the Woman's Auxiliary Committee, which is planning many delightful outings and other "doings" of interest to all non-medical women who may attend the Assembly. This Committee is concerned to see that the ladies enjoy themselves while their escorts are busy with the Scientific and other sessions of the gathering which they, themselves, may not care to attend.

There will be sightseeing trips to Greenfield Village, the motor plants, Belle Isle, Gross Ile and Grosse Pointe. There will also be ample opportunity for shopping or other expeditions that anyone may care to undertake, thus making the Assembly a delightful autumn vacation for both the surgeon and his family.

From thousands of enquiries received from the United States and Canada, as well as many foreign countries, it appears that this Assembly promises to be a memorable one, not only from the scientific point of view but also from the standpoint of collateral activities. The surgical profession as a whole is most cordially urged to attend.

Ainhum: Report of a Case

JOSEPH HERSH, M.D., F.I.C.S.
PITTSBURGH, PENNSYLVANIA

SINCE 1881, when Hornaday reported the first case of ainhum in the United States, there have appeared a series of forty-nine cases in the American literature. The disease is most prevalent in negroes, males being affected twice as often as females. The

Fig. 1. Preoperative appearance of ainhum (author's case).

lesion is characterized by a linear narrow strip of hardened skin which progressively embraces the entire circumference of the little toe at the level of the phalangeal metatarsal fold. The distal portion of the toe becomes large, bulbous and flattened on the plantar surface, its attachment being only a thin pedicle, the final result being spontaneous amputation due either to gangrene or trauma.

The constriction is probably induced by some mechanical or infectious injury. It is predominant in negroes because of their marked fibrogenetic tendency. Mechanical injury can be explained on the basis of pes valgoplanus common in the negro, with associated changes in circulation due to chronic foot strain. Infectious injury must be considered in the common occurrence of dermatophytosis in the space between the fourth and fifth toes.

Treatment is simple amputation, preserving the head of the fifth metatarsal bone to maintain integrity of the tri-

Fig. 2. Plantar surface of toes, demonstrating annular fissure (ainhum).

angle of the foot. In the literature, linear incision has been mentioned in the early stages of the process to arrest the constriction. In one case lumbar sympathetic ganglionectomy was successfully carried out. However, the nature of the disease was not apparent at the time of the operation.

CASE REPORT

M. M., a negro male, age 52 years, mill-worker by trade, was referred to the surgical service at Passavant Hospital on December 4, 1944, by Dr. Benjamin Schulman with an admitting diagnosis of ainhum. The highlights of the history were referable to his fifth toes with a chief complaint of "pain in both little toes". His trouble started as corns about ten years ago with intermittent pain since then. An annular fissure formed around the toes five years ago and has grown progressively deeper.

On physical examination a bilateral hallux valgus was present. Both little toes displayed an annular fissure at the base. The toes hung by a thin pedicle, that on the left side being much thinner than on the right. The distal portion of the toes were bulbous and tender. Kolmer and Kahn reactions were negative.

On December 5, 1944, a simple bilateral amputation of both fifth toes was carried out under subarachnoid anesthesia. The patient was discharged on December 19, free of pain and able to resume his occupation.

(Continued from page 464)

ADDENDA

Enrollment in the College of Medicine, University of the Philippines, from 1924–25 to 1940–41 was, according to the Yearbook of Philippine Statistics, 1940 (pp. 22–23), as follows:

	1st Sem.	*2nd Sem.*
1924–25	187	178
1925–26	231	219
1926–27	283	245
1927–28	311	292
1928–29	360	351
1929–30	374	372
1930–31	411	405
1931–32	420	408
1932–33	436	429
1933–34	464	456
1934–35	493	484
1935–36	546	530
1936–37	623	575
1937–38	602	594
1938–39	615	608
1939–40	560	550
1940–41	534	536
1945–46	198	198

The intern's rotation of service is shown in the following plan:

Departments	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*	*January*	*February*	*March*
Medicine	A	A	A	A	B	B	B	B	C	C	C	C
	A	A	A	A	B	B	B	B	C	C	C	C
Surgery	1-2-4	1-2-4	1-2-3	2-3-4	1-2-4	1-2-4	1-2-3	2-3	1-2-4	1-2-4	1-2-3	2-3
Gynecology	B_2	B_3	B_4	B_1	C_2	C_3	C_4	C_1	A_2	A_3	A_4	A_1
Obstetrics	C_1	C_2	C_3	C_4	A_1	A_2	A_3	A_4	B_1	B_2	B_3	B_4
Pediatrics	C_2	C_3	C_4	C_1	A_2	A_3	A_4	A_1	B_2	B_3	B_4	B_1
Ophthalmology and Otorhinolaryngology	C_3	C_4	C_1	C_2	A_3	A_4	A_1	A_2	B_3	B_4	B_1	B_2

(Letters designate sections; a figure following, one-fourth section)

(Continued on next page)

HOURS OF WORK IN EACH SUBJECT IN THE FIRST FOUR YEARS OF THE COURSE*

	First Year		*Second Year*		*Third Year*		*Fourth Year*		
Subjects	First Semester	Second Semester	First Semester	Second Semester	First Semester	Second Semester	First Semester	Second Semester	*Total*
ANATOMY									
1. Gross Anatomy	176	208	...	...	...	...	...	...	
2. Histology	176	...	...	...	...	...	...	...	
3. Embryology	80	...	...	...	...	...	...	...	
4. Neuro-Anatomy	...	96	...	...	...	...	...	...	736
PHYSIOLOGY AND BIOCHEMISTRY									
1. Biochemistry	160	...	...	...	...	...	...	...	
2. Physiology	...	288	...	...	...	...	...	...	448
PATHOLOGY AND BACTERIOLOGY									
1. Bacteriology	...	...	176	...	...	...	...	...	
2. Pathology	...	...	224	...	...	...	...	...	
3. Clinical Pathology	...	...	...	80	...	...	...	...	
4. Advanced Pathology	...	...	...	...	...	...	...	80	560
PHARMACOLOGY									
1. Pharmacology	...	...	96	96	...	...	...	...	
2. Pharmacology	...	...	...	...	32	...	...	...	224
HYGIENE									
1. Parasitology	...	...	64	64	...	...	...	...	
2. Hygiene	...	...	...	...	112	...	...	...	
3. Hygiene	...	...	...	...	...	...	32	...	272
MEDICINE									
1. Physical Diagnosis	...	...	...	48	...	...	...	...	
2. Medicine	...	...	...	...	192	144	...	...	
3. Medicine	...	...	...	...	...	...	208	160	752
SURGERY									
1. Surgery	...	...	...	169	...	...	...	...	
2. Surgery	...	...	...	...	112	160	...	...	
3. Surgery	...	...	...	...	...	...	100	148	680
OBSTETRICS									
1. Obstetrics	...	...	...	...	48	48	...	...	
2. Obstetrics	...	...	...	...	...	...	24	24	144
PEDIATRICS									
1. Pediatrics	...	...	...	...	48	48	...	...	
2. Pediatrics	...	...	...	...	...	...	56	72	224
OPHTHALMOLOGY AND OTORHINOLARYNGOLOGY									
1. Ophthalmology and Otorhinolaryngology	...	...	...	...	...	48	...	...	
2. Ophthalmology and Otorhinolaryngology	...	...	...	...	...	...	48	32	128
GYNECOLOGY									
1. Gynecology	...	...	...	...	...	40	...	...	
2. Gynecology	...	...	...	...	...	...	44	12	96
LEGAL MEDICINE									
1. Legal Medicine	...	...	...	...	...	...	16	16	32
TOTAL	1,184		1,008		1,032		1,072		4,296

* Computed on the basis of 16 weeks a semester.

(Continued from page 420)

abdomen for metastasis and better preserves the vascularity of the withdrawn bowel. However, the perineal approach is a less severe operation. To prevent secondary perineal hernia, I have found it desirable to liberate the adjacent skin from the buttocks, to slide the flaps medially and so to unite their inner edges to the fibrous tissue over the bony outlet of the pelvis as to form a deep perineal cleft. As the lymphatic spread from the anal region is lateral and about the inner thigh to the medial inguinal lymph nodes, instead of upward into the abdomen, it is desirable not only to carry the incision wide of the growth but also to excise the inguinal lymphatics. Fecal soiling is prevented by maintaining a large opening rather than a stenotic bowel, and by routine use of an enema or quickly acting laxative taken every second to fifth day, dependent upon individual tendencies. A number of patients for whom I have transplanted an abdominal colostomy after a Miles or other operation to the perineum, report that the perineal opening is associated with less soiling, less discharge of offensive gas, and is much easier to care for than the abdominal colostomy. A few patients, after the perineal proctectomy, find the need of artificial aid to prevent soiling unnecessary.

An abdominal colostomy is not used in any of these operations. In no case is the bowel sutured to the skin, as the rhythmic peristaltic contractions tear holes at the points of suture, with secondary leakage and wound infection. Secondary contamination, sloughing, sinuses, fistulae and stenotic openings associated with the older posterior anastomoses, and the Kraske operation, as well as with the Hochenegg or Whitehead type of pull-through operation, render it unnecessary to consider these technics.

PERSONAL EXPERIENCE WITH OPERATIONS ON THE LARGE BOWEL WITHOUT ABDOMINAL COLOSTOMY

Abdominoperineal proctosigmoidectomy with retained sphincters	204
Perineal proctosigmoidectomy	66
Single stage end-to-end resection	154
Mikulicz-Paul resection	82
Transplantation or elimination of abdominal colostomy after Miles or other operation	50
TOTAL	556

Age of patients at time of operation	21 to 87 years
Operability, last 300 patients	97 per cent
Liver metastasis	20 per cent
Invasion of adjacent organs	13 per cent

Results 100 recent consecutive patients:		
Considered inoperable		2
Hospital deaths		5
Generalized carcinomatosis	1	
Coronary occlusion	1	
Leakage and peritonitis	2	
Diffuse pelvic carcinosis	1	
Operative recovery		93
TOTAL		100

SUMMARY

During recent years single-stage operations for the eradication of intestinal cancer, have increasingly supplanted multiple-stage technics. This has been made possible by the increased number and efficiency of aids such as spinal anesthesia, transfusions of blood, saline, dextrose, amino acids, etc.

The author, a pioneer in the use of the one-stage technic, gives further details of his methods, described earlier, for resection without recourse to colostomy. His experience shows that most patients find much less esthetic distress and discomfort from the results of his technic than from those of such methods as the Mikulicz-Paul or other multiple-stage procedures.

He describes in some detail the various modifications of his method dictated by the varying locations of the new growths for which the resections are undertaken. He concludes with a tabulation of results with one hundred patients upon whom he has operated by this method.

(Continued on next page)

SOMMAIRE

Depuis quelques années, les opérations en un temps pour l'éradication des cancers intestinaux supplantent de plus en plus les opérations multiples. Ceci a été rendu possible par l'augmentation du nombre et aussi de l'éfficacité d'aides—tels que l'anesthésie rachidienne, les transfusions sanguines, saline, dextrosée, acides aminiques, etc.

L'auteur un pionnier de la technique en un temps, donne les détails de sa méthode de résection sans avoir recours à la colostomie. Son expérience l'a convaincu que ses malades souffrent moins de détresse esthétique et moins de malaises qu'avec les méthodes tels que celles de Mickuliez-Paul et d'autres méthodes à temps multiples. L'auteur décrit en détail les différentes modifications de methode basées sur le siège de la tumeur pour laquelle la résection est entreprise. Il nous donne les résultats obtenus dans une centaine de malades opérés par sa méthode.

RESUMEN

Durante los últimos años las operaciones de una sola vez para la eliminación del cáncer intestinal han sustituído en notable proporción a la técnica de las operaciones sucesivas. Esto ha sido posible por la efectividad y el creciente número de los recursos auxiliares, como la anestesia espinal, las transfusiones de sangre y las inyecciones salinas, de glucosa, aminoácidos, etc.

El autor, un precursor en el uso de la técnica de una sola operación, ofrece nuevos detalles de los métodos que ya ha descrito anteriormente, de la recesión sin recurrir a la colostomía. Sus experiencias demuestran que la mayoría de los pacientes sufren menos molestias y menos efectos antiestéticos con el uso de estos procedimientos que con las técnicas Mikulicz-Paul y otras de operaciones múltiples.

El autor describe con algunos detalles las variantes de su método, de conformidad con la locación de los nuevos crecimientos que hayan de recesarse. Concluye con una tabulación de los resultados logrados en cien pacientes sometidos a este método operatorio.

Свод

В течение последних лет одностажные операции для искоренения кишечного рака замещают более и более часто много-стажные методики. Это было сделано возможным увеличивающимся числом и эффективностью таких средств, как спинная анестезия, переливание крови, физиологические, дэкстрозные и аминокислотные растворы и т. д.

Автор, пионер в области применения одностажной техники, дает новые детали своих метод, описанных раньше, для резекции без колостомии. Его опыт показывает, что большинство больных испытывают меньше эстетического страдания и неудобств в результате его техники, чем те, кто были оперированы по методам Микулича-Paul'a или других многостажных процедур.

Он описывает довольно подробно модификации своей методы в зависимости от локализации опухоли. В заключение он дает таблицу результатов в 100 оперированных больных.

(Continued from page 474)

2. The average patient with thyrotoxicosis presents a typical and striking clinical picture. The physician should, however, be familiar with various atypical modes of onset, including the appearance of well developed exophthalmos and conspicuous diffuse enlargement of the gland, with only slight evidence of toxicity; predominance of cardiovascular abnormalities, with little objective evidence of overstimulation; an onset characterized by pronounced gastrointestinal symptoms, and the appearance of clinical signs of hyperthyroidism with a normal basal metabolic rate.

3. Diabetes mellitus, pulmonary tuberculosis, neurocirculatory asthenias and psychoneuroses are the diseases which are most likely to be considered in the differential diagnosis.

SOMMAIRE

Après avoir discuté les définitions de termes "thyrotoxicose," "goître toxique" et "hyperthyroïdisme," l'auteur nous offre une classification des types offrant ce syndrome. Il nous donne une liste dans leur order d'importance des symptômes et une discription détaillée de chacun de ces symptômes. Cela est suivi dé la considération du diagnostic différentiel de certains groupes cliniques: diabète sucré, tuberculose, psychoneurose et aussi différentes complications. Plusieurs cas sont discutés brièvement.

RESUMEN

Al discutir las expresiones corrientemente expleadas de "tirotoxicosis," "bocio tóxico" e hipertiroidismo, el autor menciona los tipos y clasificaciones bajo los cuales se incluye este sindrome.

Luego clasifica, por orden de importancia, los síntomas con una detallada descripción de cada uno de ellos, y, como final, entra a hacer consideraciones sobre el diagnóstico diferencial mencionando al caso la diabetes mellitus, la tuberculosis y las psiconeurosis como factores complicantes o motivos de conflicto. Cita brevemente una serie de casos.

Свод

По обсуждении терминологических определений "тиротоксиза", "тохического зоба" и "гипертироидизма" автор дает список типов и классификаций, включающих этот синдром. Затем, в порядке важности, он перечисляет симптомы, дает подробное описание каждого, и заключает диференциальным диагнозом, включая сахарный диабет, туберкулез и психоневроз, как контрастные или осложняющие факторы. Он кратко описывает несколько случаев.

REFERENCES

1. Warthin, Alfred Scott. The Constitutional Entity of Exophthalmic Goiter and So-Called Adenoma. Ann. Int. Med. **2**:553 (Dec.) 1928.
2. Plummer, Henry S. The Clinical and Pathological Relationship of Simple Exophthalmic Goiter. Am. J. M. Sc. **146**:790 (Dec.) 1913.
3. Dailey, U. G. Local Examination of the Thyroid Gland, to be published.
4. Goetsch, Emil. Newer Methods in the Diagnosis of Thyroid Disorders. New York State J. Med. **18**:259, 1918.
5. Barr, David P. Medical Management of Thyrotoxicosis. Surgery **16**:668 (Nov.) 1944.
6. Shorr, E., and Richardson, H. B. The Creatinin Metabolism in Atypical Graves' Disease. Tr. A. Am. Physicians **50**:1156, 1935.
7. Ginsberg, Solomon. Postoperative Progressive Exophthalmos with Low Basal Metabolic Rate. Ann. Int. Med. **13**:424 (Sept.) 1939.
8. Means, J. H. The Thyroid and Its Diseases, J. B. Lippincott Company, Phila., 1937; Eye Problems in Graves' Disease, Illinois M. J. **80**:135 (Aug.) 1941. (In this article Means credits Henry Plummer with priority in the use of thyroid substance for the treatment of severe grades of exophthalmos.)
9. Lahey, F. H. Apathetic Hyperthyroidism as Distinctive to Activating Thyroidism. S. Clin. North America **9**:1303 (Dec.) 1929.

(Following are summaries of material which appeared in our May–June, 1946 issue.)

SUMMARY

Evaluation of Methods of Study of Peripheral Vascular Circulation

Samuel Lisker, M.D.

The author has chosen to limit his discussion to advanced organic arterial occlusion with actual or impending gangrene. He lists the steps to be taken prior to surgery as (1) history and clinical examination, (2) oscillometry, (3) histamine test, (4) skin temperature. He estimates the value of each. He classifies the patients discussed as those (1) without rest pain, (2) with mild rest pain and (3) with severe rest pain unrelieved by sedatives.

In the discussion (by Charles A. Hatfield, M.D.) certain additional points are brought out, while some facets of the material already presented are emphasized.

RÉSUMÉ

Evaluation des Méthodes D'Étude de La Circulation Vasculaire Périphérique

L'auteur a limité sa discussion à l'occlusion artèrielle avancèe et organique compliquèe de gangrène existantè ou menaçante. Dans ces cas, il fâut avant d'intervenir chirurgicalement avoir recours (1) à l'évolution et à l'examên clinique, (2) à l'oscillomètrie, (3) à l'épreuve de l'histamine, (4) à la temperature cutanée. Il discute la valeur de chacum de ces procidés. Il classifie ces cas ainsi: (1) ceux sans douleur ou repos n'est pas soulagée par les modérée au repos, (3) ceux dont la douleur ou repos n'est pas soulagée par les analgésiques.

En discutant la communication Charles A. Hatfield à ajouté des notions supplémentaires et a souligné des considérations importantes.

Свод

Оценка методов изучения перефирального сосудистого кровообращения.

Автор ограничивается разбором развитой артериальной оклюзии с угрожающей или присутствующей гангреной. Он перечисляет следующие необходимые преоперативные шаги: 1. история болезни и клиническое исследование, 2. осцилометрика, 3. гистаминовая проба, 4. кожная температура. Он оценивает каждый шаг. Он делит описанных больных на три класса: 1. без боли при отдыхе, 2. небольшая болезненность при отдыхе и 3. с сильной болью при отдыхе, которая не поддается операции.

При обсуждении этого вопроса (Доктором, Charles A. Hatfield) были выяснены некоторые добавочные пункты и подчеркнуты некоторые черты представленного матерьяла.

AMINO ACIDS IN SURGERY

Charles S. White, M.D.

RÉSUMÉ

La grande importance des acìdes aminos chez les malades devant subir une grande opération est discutée. Les raisons de déficits dans la balance nitrogène avant et après une opération chirurgicale sont étudièes en detail. L'auteur nous donne une méthode pour la préparation de la solution intraveineuse qu'il préfere. Les réactions observées dans 300 cas opératoires sont rapportées.

RESUMEN

Se discute y estudia aquí la importancia de los amino-ácidos en los pacientes que van a sufrir una intervención quirúrgica, analizándose en detalle las causas responsables de las deficiencias del equilibrio nitrogenado del organismo en el momento o inmediatamente depués de la operación. Se dan a conocer los

pormenores de un método de preparación de un material adecuado para la administración intravenosa. Se analizan al respecto las reacciones halladas en 300 casos operatorios.

THE CLASSIC CESAREAN SECTION

Désiderio Albino Román, M.D.

Sumario y Conclusiones

Aunque hay suficientes estadísticas que encriminan la operación cesárea clásica a causa de su alto porcentaje de mortalidad, es quizás interesante el comunicar que en un período de cuatro años he practicado 53 cesáreas clásicas sin una sola muerte que pueda achacarse directamente a la operación. Un solo caso murió de sindroma cardiopulmonar terminal a los veintiún días de operada. Las estadísticas demuestran que no hubo mortalidad y que el promedio de hospitalización fué de 12 días. Estoy plenamente convencido de que con un cuidado prenatal bien llevado, con estudio cuidadoso del paciente, exámenes de laboratorio correctos y preparación del paciente para una posible operación, podemos reducir grandemente la incidencia de infección. Creo que la cesárea debe hacerse en el trabajo tan precozmente como sea posible, y que cuando se decide una cesárea electiva, ésta debe hacerse dentro de una semana antes de la presunta fecha del parto. Cuando el feto aparece excesivamente grande, se debe radiografiarlo en el último mes del embarazo para descartar monstruosidades, ya que la cesárea rara vez se justifica en presencia de un feto anormal. Analizando estos 53 casos bajo el punto de vista pelviano he notado que en las mujeres blancas nacidas en el país, la contracción pelviana abunda menos que en las extranjeras, y que el tipo raquítico de pelvis es más comunmente encontrado en negras. Las pelvis generalmente contraidas fueron las más frecuentemente halladas, seguidas a incidencia por las deformadas por una enfermedad del raquis.

Свод и заключения

Так как имеется достаточно статистических данных, уличающих классическое кесарево сечение в высокой процентности смертности после этой операции, то интересно, что в течение 4-х лет я совершил 53 классических кесаревых сечений без единственного случая смерти, причиненной сечением. Одна больная умерла на 21-ый день после операции от конечного кардиопульмонарного синдрома. Статистика также показывает, что у моих больных осложнений не было, и что среднее пребывание в больнице было 12 дней. Я твердо верю, что при до-родильном уходе вместе с компетентным физическим и лабораторным исследованием, процентность инфекции очень уменьшена правильным режимом и подготовкой больной к возможной операции.

Я думаю, что кесарево сечение должно быть сделано так рано, как только возможно и, что во всех случаях, где было избрано и решено кесарево сечение, операция должна быть произведена за неделю или за несколько дней до дня ожидаемых родов. Когда плод необыкновенно большой, то в последние месяцы беременности необходимо сделать рентгенограму, чтобы исключить возможность уродства, так как кесарево сечение не оправдывается в случае ненормальности плода.

Анализируя эти 53 случая с точки зрения типа таза, я заметил, что у белых американски-рожденных женщин сокращенный таз встречается более редко, чем у иностранно-рожденных женщин, и что рахитический таз редко наблюдался у белых женщин, но более часто встречался у негритянок.

В этой серии общий сокращенный таз встречался наиболее часто, а на втором месте был таз, деформированный спинными болезнями.

NEW BOOKS

Amid the ever-increasing wealth of our medical knowledge, as represented by a very deluge of new books constantly thrust upon us, we are apt to forget that all of this knowledge had a definite beginning. Each clinical entity was individually recognized, each kind of treatment instituted, at some fairly definite time and place and by some specific person or group of persons. We are also apt to overlook the debt we owe to these pioneers, recent or remote. Because, in some cases they, like Columbus, did not recognize the true nature of what they had discovered, we are prone to minimize the importance of the fact that through them the discovery *was* made, whether *they* recognized it or not.

Dr. Ralph Major, in his monumental **Classic Descriptions of Disease,**[1] has gone back to these beginnings in medical knowledge, and has presented in scholarly array, the names, faces and writings of these revered pioneers. The amount of study, research and plain, ordinary hard work involved in such an undertaking fairly staggers the imagination. That the results bear witness to his labors, one needs only to dip into the book to discover. That he could make such material not only accurate and comprehensive, but also delightfully readable, is still more amazing.

The arrangement of the contained material is orderly and logical. Appealing as it is meant to do, to people of medical interests, it is arranged by diseases (infectious, deficiency, etc.) then subdivided within these groupings. In each case, Dr. Major has given, as nearly as possible, the first and original description, essay, thesis or other presentation, either by the individual himself or in some way closely associated with him, the individual chosen being always the one to whom history—or reasonably well-authenticated tradition—aseribes the earliest work or observations on the subject. In addition, the author provides a brief biography of each, with a portrait wherever that is available.

Much of the material is extremely valuable from a scientific and historic point of view. Some of it, in view of more recent discoveries or observations along the same lines, is little more than amusingly interesting. But, true or misguided, the work of these pioneers is not to be disregarded, for even when their conclusions were erroneous, they at least stimulated those who came after, to the efforts which led to the correction of those errors. Is it not possible that, even today, the seeds of truths *still* hidden may lie in some of these earlier, misinterpreted observations? This is indeed food for thought!

Whether the reader be a serious student in search of reliable source material or merely a weary doctor snatching a few moments of rest before his own hearthstone, he will find within these pages matter to occupy his mind and satisfy his need.

Colonel Robert A. Groff and **Lieutenant Sara Houtz,** in their **Manual of Diagnosis and Management of Peripheral Nerve Injuries,**[2] present a very instructive manual, simply and clearly written and beautifully illustrated. It is based upon their rich experience in an Army hospital at the Assam-Burma border. *Part I* is devoted to a general discussion of peripheral nerve injuries, recognition of the type of injury and the signs of recovery, and treatment and postoperative care, including physiotherapy. Most neurosurgeons will agree with their general principles; i.e., "Nerve injuries, either partial or complete and not associated with open wounds, should be observed for a period of from four to six weeks. . . . If at the end of this time a complete paralysis has shown signs of degeneration by electrical reactions or a partial paralysis has regressed the nerve should be explored."

Part II presents an illustrated outline of peripheral and cranial nerve function. As a special feature of this section, muscle function is demonstrated by action diagrams. Surgeons, neurologists, neurosurgeons and physical therapists will enjoy this book and profit from the didactic talent of its authors.

---

[1] Classic Descriptions of Disease with Biographical Sketches of the Authors. Ralph H. Major, M.D., Professor of Medicine, University of Kansas School of Medicine. 3rd Ed. 678 pp., illustrated. Charles C. Thomas, Springfield, Illinois, 1945. Price, $6.50.

[2] Manual of Diagnosis and Management of Peripheral Nerve Injuries. Robert A. Groff, M.D. and Sara Jane Houtz, B.S. 111 illustrations. J. B. Lippincott Co., Philadelphia, Pa.; 1945. Price, $8.00.

In the latest revision of his **Physical Signs in Clinical Surgery,**[3] **Mr. Hamilton Bailey** has provided for the diagnostician a veritable goldmine of information in most easily accessible form. The material included is strictly practical and condensed to a point where every word is valuable.

The original purpose of the work is adequately set forth in the preface: "There is a growing tendency to rely upon laboratory and other auxiliary reports for a diagnosis. A former chief, . . . was wont to picture the modern graduate of medicine, when summoned to an urgent call, driving up . . . followed by a pantechnicon containing a fully equipped X-ray installation, and a laboratory with a staff of assistants. Without these aids the future doctor would be unable to formulate a diagnosis. The history, and physical methods of examination, must always remain the main channels by which a diagnosis is made."

The illustrations, which are fully half the value as well as the content of the book, are mostly entirely new, because those used in the preceding edition were "destroyed by enemy action." The author states without apology that the physical format of the book suffers from war-time restrictions, though to this reviewer, such shortcomings are not apparent. The only visible defect—a most minor one—is that the black-and-white photographs are somewhat poorer in both detail and quality of reproduction than the really magnificent color plates. These latter give the reader the impression that he has actually *seen* the conditions pictured. Taken with the relative text, it is hard to see how anyone, with even a fundamental knowledge of differential diagnosis as a background, could hesitate in making a decision, after using them for a guide.

Even though no American edition of this work has been published, it would be well worth the while of anyone interested in any form of differential diagnosis which could possibly include the observation of physical signs, to go to whatever pains are necessary to obtain a copy of it for his reference library.

This enlarged and revised edition of **Dr. Albert Kuntz's** outstanding work on **The Autonomic Nervous System** [4] is welcomed by all who are interested in the subject, as well as in neurology and physiology in general.

During the last decade so many advances have taken place in our knowledge of the physiology of the autonomic nervous system and its role in various diseases that the second edition was rapidly becoming less useful as a reference work. Into the third edition have been incorporated the observations and results of recent years of extensive investigative work in the experimental fields, as well as the interpretation of clinical studies and the analysis of therapeutic results. The more fundamental concepts, which older investigations have developed, are brought up to date and elucidated with great clarity, and in an interesting and authoritative manner. The indications for, and the results of, surgical attack upon the sympathetic nervous system are reviewed in the various diseases for which such surgery is performed.

The 120 pages of bibliography are not the least valuable portion of the book. This work should be included in the private library of anyone interested in any phase of neurology.

---

[3] Demonstrations of Physical Signs in Clinical Surgery. Hamilton Bailey, F.R.C.S. (Eng.), F.I.C.S. Ninth Ed., revised. 352 pp., 492 illus., many in color. John Wright & Sons, Ltd., Bristol, England, 1944. (Excerpts from the text of this work—typical of the form in which it is couched—may be found in several places in the March–April, 1946, issue of this *Journal.*)

[4] The Autonomic Nervous System. By Albert Kuntz, Ph.D., M.D., Professor of Micro-Anatomy in St. Louis University School of Medicine. St. Louis, Third edition. Cloth. Pp. 687, with 91 illustrations. Philadelphia: Lea & Febiger; 1945. Price, $8.50.

In the brief foreword to his **Traumatic Deformities and Disabilities of the Upper Extremity,**[5] **Dr. Arthur Steindler** says that it is "offered in the form of a case book rather than that of a text" because the contents "is too large, too varied and diversified to be covered by any one man's experience." This is a very accurate estimate of the work.

Every conceivable form of defect of the hand, arm and shoulder girdle is covered, both in the case reports—of which there are nearly three hundred—and in the interspersed explanatory text. Almost every report is accompanied by "before and after" photographs and roentgenograms. In addition, the text is still further illuminated by large numbers of diagrams and graphs.

Many operations are described in detail, both for repair and correction of physical defects and injuries, and for paralyses and other disabilities originating in the nervous system. Some of these are modifications or combinations of standard practices, while others are partially or entirely the author's own. One section is devoted to mechanical appliances, another to cinematization.

This is essentially a work-book, designed to be kept at the busy surgeon's elbow. Though of moderate physical size and quite unpretentious in appearance, it is literally packed from cover to cover with thoroughly usable material. References are grouped at the end of each section; both author and subject indices are supplied, with a detailed and extensively sub-divided table of contents as well. The type is of the same size as that used in the main body of this *Journal*, but with lines somewhat more widely spaced, making for good appearance and easy reading.

This book will definitely be a good investment for any practitioner who has any appreciable number of industrial or other patients of the type subject to the kinds of handicaps indicated by the title.

When the master craftsman speaks to the apprentice, for his instruction, it behooves the apprentice to listen well and earnestly. The **Drs. George Crile,** father and son, were and are masters in their field; the younger Dr. Crile's new handbook, **Hospital Care of the Surgical Patient,**[6] speaks in just this way, as a master to an apprentice. It is designed for the surgical interne and the young surgeon just starting out in practice. Much that is in it, was undoubtedly included in their training courses in medical school, much is also familiar to the nurses and orderlies who work under their orders; yet how often are these fundamental principles and maneuvers stored away in some dusty cubby in the mental "back of beyond," only to turn up missing, when most needed. To have them all at hand, in a small, handy reference book which could even be slipped into the pocket of a white coat if needed, is one of those minor blessings not too often vouchsafed in this imperfect world.

Not the least virtue of this little book is the fact that it gives the most space to commonly-encountered difficulties, leaving rarities to the magazines and the more pretentious texts, which always accord them so much attention. Logical arrangement and division of material is also a valuable asset; separate sections cover such departments as Physiologic Principles, Surgical Complications, Common Procedures, Preparation and Postoperative Care, and the Relations of the House Officer to the various classes of people, nurses, other surgeons, patients' families, with whom he daily comes in contact. An appendix covers the related subject of the Treatment of Wounds.

Illustrations, consisting of both photographs and line drawings, as well as charts and graphs, while not too numerous, are good and clear, and cover most of the important procedures and technics.

---

[5] The Traumatic Deformities and Disabilities of the Upper Extremity. Arthur Steindler, M.D., F.A.C.S., and John Louis Marxer, M.D. 515 pp., 1048 illus. Charles C. Thomas, Springfield, Illinois, 1946. Price $10.00.

[6] Hospital Care of the Surgical Patient. A Surgeon's Handbook with an Appendix on the Treatment of Wounds. George Crile, Jr., M.D. and Franklin L. Shively, Jr., M.D. Foreword by Evarts A. Graham, M.D. Charles C. Thomas, Springfield, Illinois; 1946. Price, $3.50.

Dr. Victor F. Marshall is an excellent specimen of that vanishing species, the "old-fashioned country doctor." In his autobiography, facetiously entitled, **Doctor! Do Tell!**,[7] he recounts the experiences and observations of more than a half century as mender of bodies and healer of souls in a small, mid-western city. Many such accounts, good, bad and indifferent, have been published through the years; unfortunately Dr. Marshall's book belongs to the last-named classification.

Written in a style that is just a little too informal, it lacks that lustiness of flavor which would give excuse for such informality. The anecdotes recounted—and they comprise the major portion of its contents—while undoubtedly interesting and instructive to those concerned—have been told too literally, in many instances. "Unvarnished truth"—so much emphasized by the racier movie advertisers—actually can be pretty dull most of the time! Dr. Marshall obviously erred in favor of strict truthfulness, never having realized, apparently, that the most successful biographical writing is done with an eye, first to drama and secondly —a bad second—to the strict recounting of facts.

---

[7] Doctor! Do Tell! Victor F. Marshall, M.D., F.A.C.S., F.I.C.S. C. C. Nelson Publishing Company, Appleton, Wisconsin; 1945.

ABSTRACT

ON THE TREATMENT OF PERFORATED GASTRIC AND DUODENAL ULCER

In "Acta Chirurgica Scandinavica" (Vol. XCIII, Fasc. VI, p. 467), appears an article under the above title, by Ivar R. Sandberg, which, in summary, reads as follows:

"A review is given of especially the more recent literature on the subject, with special reference to the primary mortality and late results. During the years 1940–1944, 110 patients (101 men and 9 women) were treated for perforating gastroduodenal ulcer at Karolinska Sjukhuset, 47 of the men at the Garrison Ward. The mean age was 40.8 years. Ten per cent of the patients showed no symptoms of ulcerous disease until the acute onset, and fully one-half had a history of more than one year. Free gas in the abdominal cavity could be demonstrated in 73 per cent of the cases examined by X-rays. One hundred and five patients were operated upon and 5 were not. Of the last-mentioned, 3 were so-called covered perforations. The mortality for the whole material was 10.9 per cent and for those operated upon 9.5 per cent. After deducting 2 cases in which the chief cause of death must be considered to be primary hepatic cancer or hepatic metastases, the corresponding figures will be 9.3 and 7.8 per cent, respectively. In 100 cases excision + suture or suture alone was undertaken, in 1 case in addition an anterior gastro-enterostomy + entero-anastomosis. Primary resection by the Billroth II method was done 3 times and only incision + drainage once. In 68 cases operation was performed within 6 hours of onset and in 28 the interval was 6 to 12 hours, with a mortality of respectively 5.9 per cent and 10.7 per cent.

"The patients have been followed up 2–5 years after the operation. Of 54 possible cases data have been obtained concerning 51, i.e. in 93 per cent of the cases. Four patients died of another disease. Forty per cent of the patients have become free from symptoms as a result of suture alone or excision + suture. Twenty per cent have mild symptoms but are able to work. In 40 per cent the result is not satisfactory. Of the patients in this group, three-fourths have undergone resection secondarily without any deaths.

"The investigation suggests that patients with long-standing ulcer symptoms have less chances of a good late result from conservative operation than those with a short history.

"As a normal method excision + suture, possibly suture alone, is recommended, but under certain conditions a primary resection is to be preferred in selected cases. Chemotherapy locally or by intravenous drip infusion. Careful control of the fluid and salt balance."

NEWS NOTES

The Southern California Guild of the International College of Surgeons held an organizational dinner meeting in the University Club of Los Angeles on March 6, 1946. Dr. Cunha, the Regent, from San Francisco and Dr. Gallant, Alternate Regent, of Los Angeles, were guests. In view of the fact that some of the members were planning to go to the International Congress at Lima, Peru, a few days later the decorative motif used was Peruvian, including American and Peruvian flags, and flowers in the national colors of Peru.

At the business meeting, a nominating committee was named to propose candidates for office. A plea was made for promulgation of the aims of the International College. In connection with the meeting of the A.M.A., scheduled for San Francisco for July 1st to 5th, it was suggested that means be provided of meeting and entertaining I.C.S. members who might be present. A telegram from the National President, Dr. Herbert Acuff, was read, and the secretary was instructed to reply. Greetings were sent to the Lima Chapter; these to be in the form of an appropriately inscribed scroll. A plea was entered for the National Gastro-enterological Society. An autographed program was sent to one member absent because of an accident.

Russian Relief, Inc., reports for the year 1945, that, out of $32,706,469.95 contributed by the American people to the funds of this organization, the second largest portion, after clothing, was used for medical, chemical and surgical supplies. Such contributions, "signified continuing and ever-increasing assistance, continuing and ever-firmer friendship for the heroic people of the Soviet Union"; . . . "aid through Russian Relief is friendship in action." It is also interesting to note that the people of Costa Rica, Panama, Brazil, Venezuela and Mexico contributed more than $230,000.00 to this cause; also that, of the total millions collected by Russion Relief, some $275,000.00 worth of goods were shipped to Poland and $126,000.00 to Czechoslovakia.

Regular Army Careers for Doctors: A recent news release from the Office of the Surgeon General outlines the advantages that are now being offered as an inducement to doctors and surgeons to remain in, or rejoin, the Army Medical Corps. General Kirk is most anxious that the high, war-time standards of this Department shall be maintained into the years of peace. In a statement presented at convocation ceremonies for the 44th General Hospital and the 135th Medical Group at the University of Wisconsin, General Kirk said, "we are working on a program that will preserve and foster the kind of coöperation and assistance which your . . . group gave us. We will look to the 'sponsored' medical units to provide the qualified, integrated personnel for the operation of certain types of military hospitals and other medical units."

One of these special inducements is contained in a new Army regulation authorizing graduate training for Army doctors aimed at the "elevation of the general level of professional qualifications of all Medical Corps officers." The "minimum duration and scope covered by the training," which will be in various medical and surgical specialties, "will be such as to meet the certification requirements of the specialty board concerned."

Royal College of Surgeons.—A communication from the late Sir D'Arcy Power, K.B.E., of the Royal College of Surgeons of England, London, reads in part, as follows:

"The International College of Surgeons has in view for its members a code of ethics, the cultivation and dissemination of the history of medicine and an endeavour to elevate the principles and practice of Surgery in every country. These are very high ideals but it is evident that every effort is being made to carry them into effect."

Authors planning to submit papers to the *Journal* for publication, should be sure to read the "General Information" page, for NEW editorial requirements.

Aid for Needy European Scientists: In a recent issue of *Science* magazine, further details are given regarding the sending of gift packages to scientists in war-devastated countries, referred to in our January-February issue. Though winter is now passed, the need of these people is as great as ever. Gift packages will be more than welcome for a long time to come; "if one has had dealings in the past with an outstanding colleague, one should most positively not be afraid to embarrass him with a gift package. If he does not need it, which is not likely, he will turn all or part of the contents over to one of his associates who may need it more. Packages can also be sent addressed to: The Staff, ... Laboratory, University of ....."

Full details regarding the kind of things to send, and the manner of packaging and shipping, together with details of postal requirements, are to be found in the issue of *Science* for March 22, 1946; or write to the American Association for the Advancement of Science, Lancaster, Pennsylvania.

Prosthetic Progress in Europe: A commission on prosthetic devices, comprised of five Army and civilian experts, was sent to Europe in March of this year, to make a study of technics in amputation surgery, developments in the field of prosthetics and artificial limbs, and the rehabilitation and reconditioning of amputees. Preliminary investigations were made by the members of the commission on recent developments in these fields, especially into the work of German and other foreign scientists as observed by Army medical personnel who have returned from the various war theatres, and into cineplastic surgery. Research into the latter suggests that it may be much more extensively applied in prosthesis in the near future.

Streptomycin Allocation Program: The Army Medical Department, which has received many requests for supplies of streptomycin to be used in treating civilian patients, announced on March 15th, that all inquiries and requests for this drug should thereafter be sent to Dr. Chester S. Keefer, Evans Memorial Hospital, 65 East Newton, Boston, Massachusetts, who has been authorized to handle all civilian requests. This announcement was made with the proviso that such requests shall be made by "a physician giving sufficient technical information to enable him (Dr. Keefer) to decide whether streptomycin is indicated in the treatment of the case." It should also be noted that supplies of this material are still very limited.

Dr. Goodpasture Honored:—It has just been announced that the $5,000.00 Passano Foundation Award for 1946 has been made to Dr. Ernest W. Goodpasture, Professor of Pathology and Dean of the School of Medicine of Vanderbilt University, Nashville, Tennessee. This award, which is made for "the advancement of medical research, especially research that bears promise of clinical application," is made this year to Dr. Goodpasture for his original development of the method for propagation of viruses in pure culture by inoculation of chick embryos and for his outstanding contributions to the advancement of knowledge of cell-parasite relationship in bacterial and virus infection.

Wisconsin Guild Honors Aged Surgeons.—The Wisconsin Guild (District No. 10) of the International College of Surgeons, held a testimonial dinner at the University Club of Milwaukee, on the evening of Wednesday, May 15, 1946, for four Wisconsin surgeons who have reached or passed their eightieth birthdays. They are: Dr. Thomas W. Nuzum, F.A.C.S., of Janesville, 86; Dr. William E. Ground, F.A.C.S., of Superior, 85; Dr. George VanInger Brown, F.A.C.S., F.I.C.S., of Milwaukee, 84; and Dr. John M. Dodd, F.A.C.S., of Ashland, 80. Dr. Custis Lee Hall, F.A.C.S., F.I.C.S., of Washington, D. C., President-elect of the American Chapter of the International College of Surgeons, was the featured speaker of the evening.

Dr. Nuzum, the eldest member of the honored group, was graduated from Rush Medical College (now University of Chicago) in 1885. Dr. Ground has been a member of the Western Surgical Association since 1901. Dr. Brown holds both Dental (1881) and Medical (1895) degrees, and was elected a Diplomate, American Board of Plastic Sur-

gery in 1939. Dr. Dodd, when well into middle life, was awarded a Sc.D. by Northland College (1925).

Dr. William J. Carson is Regent of the Wisconsin Guild, with Dr. Samuel G. Higgins serving as President.

Nebraska Guild Meeting.—The Nebraska Section of the International College of Surgeons held a meeting at the Cornhusker Hotel, Lincoln, Nebraska, on the evening of April 11, 1946. This Section comprises Fellows and Members from Lincoln, Omaha, Falls City, Columbus, Fremont, Odell and Scottsbluff, Nebraska. S. J. Carnazzo, M.D., F.A.C.S., F.I.C.S., of Omaha, is the President.

The evening's program, presided over by the Vice President, Dr. B. A. Finkle of Lincoln, included papers by Dr. C. H. Arnold, of Lincoln, who spoke on "Treatment of German Soldiers by Their Own Officers"; Mr. M. C. Smith, Executive Secretary of the Nebraska State Medical Association, "The Doctor's Answer to Federalized Medicine"; and Dr. W. P. Callahan of Wichita, State Regent, "Practical Considerations in the Diagnosis and Treatment of Gall-Bladder Disease."

College Officer Honored.—Herbert Acuff, M.D., F.A.C.S., F.I.C.S., of Knoxville, Tennessee, has recently been elected a director of the National Board of the American Cancer Society, to represent eleven southern states. This position places him in line for membership on the International Board of Cancerology. Dr. Acuff's colleagues in the International College of Surgeons, as well as his many other friends and admirers, join in felicitating him upon these well-earned honors.

New Jersey Guild Organizes.—On Wednesday, April 17, 1946, within the space of five hours, a group of New Jersey Fellows and Members of the International College of Surgeons, met for a scientific session, held an organizational meeting, and enjoyed a fine dinner with entertainment and a social get-together. The meetings were held in the Academy of Medicine, Lincoln Park, Newark, with the dinner at Essex House. About one hundred were present at the scientific session, about one-half that number remaining for the balance of the program.

The scientific session included papers by Dr. Albert Berg, of New York, the new International President of the International College of Surgeons, who spoke on "Problems in Gastric Surgery"; Dr. Moses Behrend, Philadelphia, "Gall Bladder—Modern Conception in Its Treatment," illustrated with slides and moving pictures; and Dr. Harry Bacon, Philadelphia, "Modern Operations in Recto-Sigmoid Surgery" also with moving pictures.

Dr. Watson B. Morris, of Springfield, New Jersey, is Regent of the new Guild and its moving spirit. Officers elected at the organizational session included Dr. Henry Kessler, an outstanding orthopedic surgeon of Newark, President; Dr. John Connelly, also of Newark, Vice-President; and Dr. Walter Mount of Montclair, Secretary-Treasurer.

At the dinner, colored moving pictures were shown of the Convocation held in Washington, last December, during the Tenth Annual Assembly of the American Chapter of the I.C.S.

Report from Finland.—A lengthy communication has just come from Dr. Y. Seuderling, F.I.C.S., of the Helsinki City Hospital "Kivelä," Finland, giving a graphic picture of postwar conditions in that harried small nation. He begins his letter, "As in the other countries of Europe which have been in the war the present situation concerning the everyday life in Finland is in many respects grave"; which, judging by the report which follows, is a masterpiece of understatement.

Housing is incredibly scarce, due to fire, bombs and the crowding of the population into a smaller area following the ceding of territory to Russia after the "winter war." There is almost no new construction due to shortage of materials. Rigid rent ceilings are in force on old dwellings but not on newer ones. Basic foods are rationed far more stringently than anything ever known in the United States; unrationed foods are unbelievably dear. "Tea, cocoa, dried and canned fruits and spices are now unknown here. One kilo of eggs costs about four dollars and a half."

Salaries of the learned professions, never high according to U. S. standards, have not increased, yet living in general is from seven to ten times what it was in 1939–40. Professional men and their patients do get some concessions however. A physician gets 750 to 1,000 grams of soap every second month over the regular ration of one-quarter kilo every three months. Diabetics get extra butter and meat, but no sugar at all. Smokers get only half as much sugar as non-smokers, tobacco being exchangeable for food.

Clothing is so scarce and poor that it makes American preoccupation with such items as nylon stockings seem distinctly puerile. Even umbrellas are rationed. Leather shoes are for out-door workers only. Women get two pairs of stockings a year. "Curtains, bed-linen and towels are now mostly of paper and even such pieces are difficult to get."

Transportation, even for essential needs, is hopelessly inadequate, and like all other necessities, is strictly rationed. Busses and cars use "wood or wood-coal as fuel, benzine (gas) is given only to ambulances and fire-brigades. . . . The wood and wood-coal slowly poisons the chauffeurs . . . about 20,000 suffer of carbon monoxide poisoning."

"The distribution and production are governed by a special ministry of supplies; the work of this ministry is very difficult . . . leading men try to make the life of people easier; of course their work has met with many complaints; it will always be that people are dissatisfied. But we have to thank the men in the ministry for the comparatively good order of all things."

"In the field of public health the question of tuberculosis is the most important. . . . Tuberculosis mortality showed a diminishing tendency from about 1930," the time when a number of large sanitoria were completed. Now the rate has risen again to 16:10,000 as compared with 6:10,000 in Norway and Sweden and 3:10,000 in Denmark. The reasons are not far to seek; malnutrition, over-crowding, lack of segregation of the sick, increased virulence of the disease itself. Even in the army there has been a great increase, due to excess of carbohydrates in the diet, with little fat or proteins, causing lessening immunity.

The same causes make preventive measures extremely difficult to carry out. Much has been done, but beds are lacking, especially in the farthest northern district, where the only hospital was destroyed by the Germans.

"Our leading medical men are very busy. They have to face many problems arising from crowding of people in a smaller country, but so far there have been no serious epidemics.

"The erection of the new university clinics had to be postponed, only the new and modern clinic for children will be opened next month. In the second city of Finland, Turku, in Swedish Åbo, is now a new faculty of medicine going and this circumstance will be of great importance in the future." Turku has a university founded in 1640, and a cathedral which had its 700th anniversary in 1929.

During the war, Finland considered herself fortunate that her next-door neighbor, Sweden, was at peace, and received much help of many sorts from that country. Especially valuable was the care given in Swedish homes to Finnish children to the number of more than 50,000. Some were also sent to Norway and to Denmark. Two-thirds of these were sick and undernourished. Invalids and convalescents and the wounded were also cared for in Sweden.

In conclusion, Dr. Seuderling speaks glowingly of the work of the Red Cross and UNRRA and of "the Quakers, Lutherans and other organizations," of the help and supplies received from England and other countries of Europe, and especially of the recent visit of Herbert Hoover. "Mr. Hoover is a very popular person here; already in 1938 he was elected *doctor honoris causa* by the University of Helsinki and since this time his popularity has greatly increased."

The last paragraph of Dr. Seuderling's letter reads, "From the above mentioned it will be understood that the people of Finland after two lost wars have many and grave problems to face. It will take many years to reach a better standard of living, but the government and the people itself will do everything to their utmost endurance. *We are hard up but not downhearted.*" (Italics ours.) "We will help ourselves, thus others

will help us. We are grateful for the help from other countries and especially from U.S.A.''

Temple University Medical School and Hospital of Philadelphia and the **Samuel S. Fels Funds Medical Research Laboratory** have recently announced their consolidation into a single unit for research in gastroenterology and internal medicine. The new organization will henceforth be known as the Fels Research Institute of Temple University School of Medicine and will be located in the medical school laboratory building at Broad and Ontario Streets, Philadelphia. The Samuel S. Fels Fund will furnish laboratory equipment and finance staff salaries and operating expenses. The management committee will include equal numbers of appointees from each of the coöperating groups. Dr. Harry Shay, who has been in charge since the establishment of the Fels Laboratory in 1934, will continue as director of the new organization.

The National Gastroenterological Association this year resumed its Annual Scientific Sessions with a three-day Convention in New York City, June 19th to 21st, 1946. The program included symposia and individual papers by prominent members of the profession from all parts of the country; also two round-table conferences on ''Parasitology and Tropical Medicine from a Military and Civilian Standpoint'' and ''Socialized Medicine.'' Included among those presenting papers were Dr. Harry Bacon, F.I.C.S., of Philadelphia, and Dr. Max Thorek, F.I.C.S., of Chicago.

The National Gastroenterological Association has offices at 1819 Broadway, New York City 23.

Penicillin: Madison, Wisconsin, March 26—Research workers at the University of Wisconsin have developed a new strain of mold which opens the possibility of doubling the nation's supply of penicillin, medicine's newest weapon in the battle against infection.

The feat was accomplished by two botanists who, working with funds provided by the Wisconsin Alumni Research Foundation, exposed the spores of the penicillin-producing mold to powerful ultra-violet rays. Ultra-violet irradiation causes incompletely understood and unpredictable changes in the genes of spores and seeds with resultant changes in the characteristics of the plants or fungi springing from them.

Because the new strain, known as Q176, has not been patented, soil cultures of it are being supplied gratis on request to penicillin manufacturers in this country and in England, France, China and other countries. Many are already using it in their fermentation tanks.

The news is of especial importance in view of the fact that demand for penicillin has increased far beyond even the enormous production built up in the last three years by American scientists and drug manufacturers. Because of the acute shortage, it was recently returned to an allocation basis by the government.

American production in December, 1945, for instance, was 700 billion units, or something over 1,000 pounds of the powdered sodium form of the pure chemical, but it was still short of demand for human use in this country by at least 100 billion units. And, meanwhile, demand is rising rapidly for veterinary use in the United States, while the need of the rest of the world is just beginning to manifest itself. Wisconsin's Q176 is considered to be a major step forward in bringing supply into line with the increasing need.

The story behind the development has been one of successive gambles, in which luck played almost as important a role as scientific skill.

The original British workers in 1940 were getting about two units of penicillin from every cubic centimeter of the broth in which the mold is cultured. When it was brought to this country, efforts at the Northern Regional Research Laboratory in Peoria, Illinois, a Federal institution, raised the production figure to about fifty units by August, 1942.

About that time a stock laboratory culture known as NRRL-832 was found which made it possible to grow the mold in large aerated tanks instead of on the surface of shallow flasks. With that strain and with the surface strains the United States went into major production in 21 plants. Yields slowly increased to about 100 units, while an organized effort to find new strains was begun.

The next step was the discovery—on the stem of a spoiled melon contributed by a Peoria housewife to the NRRL—of a mold known as Penicillium chrysogenum, a first cousin of the original British strain of Penicillium notatum. Early tests of this culture, which became known as NRRL-1951, jumped production still further and, with further refinement of a natural variant, selected by Kenneth Draper of the NRRL, and known as NRRL-1951-B25, production in one typical Wisconsin test series rose to an average of 169 units, with a high of 245.

Meanwhile under the Office of Production Research and Development, efforts were begun in several laboratories to develop other varieties by artificial means, such as by X-ray, chemicals or ultra-violet rays. These techniques were familiar to scientists, as they had been used, especially by geneticists, for more than a decade to produce variations of flowers, insects, fungi, etc., in the study of heredity.

The first significant break came from Dr. Millislav Demerec, director of the department of genetics at

Carnegie Institution, Cold Spring Harbor, New York. With X-ray, he developed a group of promising spore variants which he sent to the University of Minnesota for preliminary testing. There a dozen or more hopeful ones were sieved out and sent to William C. Frazier, of the agricultural bacteriology department at the University of Wisconsin.

Flask tests made by Miss Elizabeth McCoy of that department indicated surprising possibilities for one culture, known as X-1612.

Then X-1612 was sent along to W. H. Peterson and Marvin J. Johnson of the biochemistry department, who carried out tests in an 80-gallon pilot plant type of tank.

The tank test, which had produced 98 units from NRRL-832 and 168 units from NRRL-1951-B25, produced 369 units, with a high of 558, from X-1612.

The increase was so astonishing that cultures of the new strain were at once made available to all penicillin manufacturers and for more than a year it has been the basis of much of the production in the United States.

Meanwhile Myron P. Backus and John F. Stauffer of the botany department, who had been for some time studying fundamentals of mutation phenomena in penicillin-producing fungi, obtained spores of X-1612. They had originally worked with federal money, but when that ran out had obtained further financing from the Wisconsin Alumni Research Foundation.

Using a powerful binocular microscope and an extremely fine needle, they picked out at random two spores of X-1612, called them P and Q and from them started two lines of progeny, which were cultured carefully to avoid contamination. They then exposed the millions of second generation spores to ultra-violet light.

The u.v. wave length of 2650 Angstrom units, Stauffer explained, is at once highly effective in producing variants and highly deadly, so that an hour's exposure of 10 cubic centimeter suspensions, each containing 2,000,000 to 4,000,000 spores, killed all but a few of the spores.

It was from among some 500 hardy survivors of the two original spores, each series still designated as P or Q, that the test cultures were made. Nothing of great importance appeared until Q176 was reached in the screening test, where the yield from this strain was markedly higher than that from the parent strain X-1612 used as control. The results were measured in turn by the departments of agricultural bacteriology and of biochemistry.

Prof. Johnson's tank-test charts indicated an average production for Q176 of 761 units, with a high of 904, compared to the 369 average established by X-1612.

By blind chance, as Prof. Backus pointed out, a lethal ultra-violet ray had altered a microscopic bit of living matter—without killing it—in such fashion that the genes controlling its adult output of penicillin had been doubled in capacity. By comparison, a similar series of experiments in California ran up more than 60,000 tests without producing results even approaching those of Wisconsin's lucky few hundreds.

The hunt is still on, in the hope of finding a still more efficient penicillin-producer, despite the possibility that chemical synthesis of penicillin might render the world free of dependence on natural production.

Prof. Peterson said that, while the yield of nearly 1,000 units is remarkable in comparison with previous yields, there is no reason to doubt that a strain could not be found to produce two or even five times as much. The 1,000 units, he said, represent probably less than 1 per cent of all the metabolic products of the mold, yet other molds are known to produce compounds as complex as penicillin in quantities equal to 5 or 10 per cent.

Among the manufacturers now using Q176 are: E. R. Squibb & Sons, New York; Merck & Company, Rahway, N. J.; Abbott Laboratories, North Chicago, Ill.; American Home Products Corporation, New York; Hoffman-LaRoche, Inc., Nutley, N. J.; Charles Pfizer & Company, Brooklyn, N. Y., and Eli Lilly & Company, Indianapolis.

HOTEL RESERVATIONS FOR DETROIT ASSEMBLY

Hotel reservations for the Detroit Assembly, must be made promptly. The number of reservations already requested is approaching the thousand mark. Communications regarding reservations should be sent directly to Dr. Charles W. Husband, 3810 Northwestern Avenue, or Dr. Louis J. Gariepy, 16401 Grand River Avenue, both of Detroit.

Sección en Español

Técnica Precisa de Anestesia Local en las Rinoplastias

ERNESTO F. MALBEC, M.D., F.I.C.S.*
BUENOS AIRES, ARGENTINA

EJECUTAR una intervención nasal sin ocasionar al enfermo ningún dolor es un hecho perfectamente realizable. El cirujano dispone actualmente de un riquísimo material terapéutico que puede emplear con éxito a tal fin.

Nosotros nos hemos ocupado seriamente del asunto. Al efecto, concluímos por reglar una técnica, que pusimos ya en práctica desde hace varios años, mediante la cual conseguimos una anestesia inobjetable, sin causar al paciente sufrimiento de ninguna naturaleza.

En lo que respecta a su exposición, dividimos la técnica de referencia, en tres tiempos. A saber:

1º. Sedación preanestésica.

2º. Anestesia de la mucosa nasal.

3º. Anestesia interna infiltrativa.

1º. *Sedación preanestésica.*—En unos casos iniciamos la sedación durante la víspera del acto operatorio, por la noche, mientras que en otros comenzamos una hora antes de iniciar el mismo acto. Procedemos en forma distinta a objeto de adaptarnos a la diferente réplica del paciente. Hay personas sumamente impresionables que pierden su dominio habitual a la sola idea de una intervención quirúrgica, cayendo en un estado de excitación creciente, que culmina con una crisis nerviosa en el instante de la prueba. Su alteración suele ser tan honda, a menudo, que llega a dificultar la labor del cirujano. Para esta clase de personas, conviene iniciar, la noche anterior, la anestesia sedativa preliminar. De este modo, el enfermo se presenta tranquilo a la sala de operaciones, sin ningún temor, con cierto índice de resistencia a la anestesia de fondo. La sedación previa, asimismo, ofrece otra ventaja, a causa de que, al disminuir el ritmo del metabolismo basal, prolonga más la acción de la novocaína.

De la sedación preanestésica, a la narcosis, como es sabido, existe un sólo paso, cosa que debe evitarse cuando se efectúa una intervención de la nariz con anestesia local. Un enfermo dormido o inconsciente, por supuesto, no está en condiciones de prestarnos la menor ayuda durante el acto realizando movimientos voluntarios al ser requerida su colaboración, pudiendo, por el contrario, obstaculizar la prueba, verificando movimientos involuntarios. Por tal motivo, en ningún caso debemos excedernos de las dosis terapéuticas.

¿Qué substancias empleamos para obtener la sedación del enfermo? Comúnmente utilizamos la morfina o los barbitúricos, tales como el amytal sódico, el nembutal y el seconal.

La morfina, bajo su forma de clorhidrato, la administramos en inyecciones de un centigramo, aplicándola una hora antes de la operación. La usamos en muy pocas oportunidades. Preferimos usar siempre aquellas substancias, cuyo suministro se realiza por vía bucal, merced a que las inyecciones predisponen desfavorablemente al enfermo.

* Profesor libre de Medicina operatoria de la Facultad de Medicina de la Plata.

Cuando prescribimos seconal o nembutal, empleamos cápsulas de diez centigramos, y cuando prescribimos amytal sódico utilizamos cápsulas de veinte. El contenido de ambas substancias, al desintegrarse, como se sabe, es absorbido por la mucosa gastrointestinal.

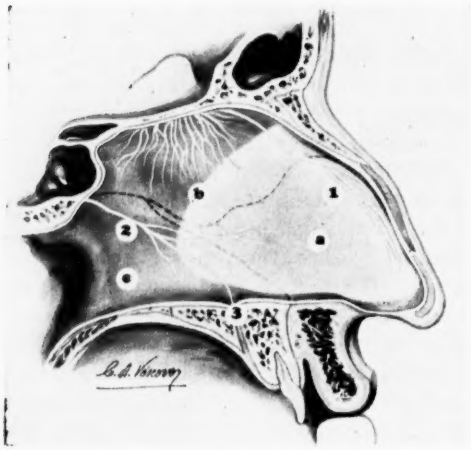


Fig. 1. Pared interna de la fosa nasal. A través de la mucosa se dejan ver los distintos elementos del tabique. (a) Cartílago cuadrangular; (b) lámina perpendicular del etmoides; (c) vómer. Además, se observan: (1) nervio nasal interno; (2) nervio esfenopalatino; (3) anastómosis con el nervio palatino anterior. La parte más clara del tabique nos reproduce el lugar donde debe aplicarse la lámina de algodón con el líquido anestésico.

Según los casos, y a fin de que el paciente se tranquilice y pueda conciliar el sueño, conviene dispensarle una o dos cápsulas de diez o veinte centigramos por la noche. Una hora antes de comenzar la intervención, según el medicamento que se emplee, se le administra una o dos cápsulas más con idéntico contenido. Si se desea actuar con mayor rapidez, se suspende, en poca cantidad de agua, el polvo de una o dos cápsulas y se le administra al enfermo media hora antes de dar principio a la intervención. El sabor fuertemente amargo del producto, dificulta a veces su ingestión. Nuestra experiencia nos dice que el mejor barbitúrico es el seconal. Nunca tuvimos con él excitaciones ulteriores. Su acción es lenta, pero mucho más duradera. Le siguen en orden de méritos, siempre según nuestra experiencia personal, el embutal y el amytal sódico.

2º. *Anestesia endonasal.* — No debe reducirse ella solamente a la mucosa que recubre el tabique. Es menester, también, anestesiar la mucosa que envuelve los cornetes. Nosotros obramos de este modo, porque, en su defecto, se le produce dolor al enfermo durante las siguientes maniobras; (a) al introducir el espéculo de Killian en los prelimi-

Fig. 2. Pared externa de la fosa nasal. Con a y b cornetes. Aquí la mucosa en su parte posterior ha sido resecada para dejar ver los filetes nerviosos. C, cara mucosa interna de la pared externa, formada por los cartílagos alar, triangular, apófisis montante del maxilar y hueso propio de la nariz. (1) Nervio nasal externo; (2) nervio esfenopalatino externo; (3) nervio nasal posterior; (4) ganglio esfenopalatino de Meckel.

nares de la intervención; (b) al hacer lo propio con alguna gasa, tanto al principio como al final, si es necesario limpiar interiormente las secreciones o sacar algún coágulo de la fosa nasal; (c) al pretender contener alguna hemorragia copiosa o moderada; (d) al ejecutar operaciones internas a fin de modificar o determinar la posición de

los diversos elementos anatómicos; (e) al terminar, cuando se dejan los tapones Simpson, los cuales se ponen en contacto con la mucosa del tabique y con la similar de los cornetes.

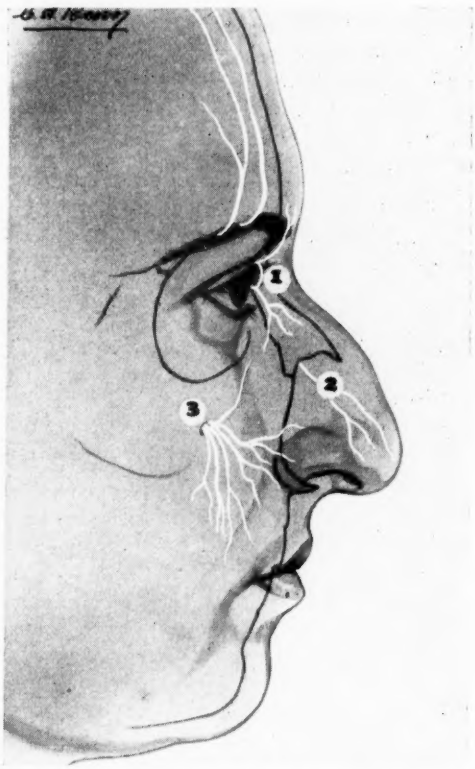


Fig. 3. (1) Nervio nasal externo; (2) nervio nasolobular que viene del interior de la cavidad nasal y pasa entre el borde inferior del hueso propio y el borde posterior del cartílago triangular, llegando hasta el ala y lóbulo nasal; (3) ramilletes del nervio infraorbitario que se distribuyen por el ala y el vestíbulo nasal.

Si la anestesia interna no se efectúa debidamente, el operado sufre, aunque la anestesia externa se haya realizado de manera perfecta. Para llevar a cabo correctamente la anestesia del apéndice nasal se requiere, claro está, el conocimiento cabal de la anotomía del órgano, y muy particularmente de su inervación, tanto interna como externa.

INERVACIÓN INTERNA

La nariz, en su parte interna, está inervada por tres nervios: el nasal interno, el esfenopalatino y el nasal posterior (figs. 1 y 2).

(a) Nervio nasal interno.—Dentro de la órbita el nervio nasal se divide en dos ramas: el nasal externo y el nasal interno. Este último, atravesando la lámina cribosa del etmoides, aparece en la cavidad nasal. Allí, se divide, a su vez, en una rama interna (fig. 1, N°. 1) que inerva la parte anterior de la mucosa del tabique y una rama externa (fig. 2, N°. 1) que hace lo mismo con la cara interna de la pared externa de la fosa nasal en su parte anterior. Este ramo, finalmente, sale al exterior a través de un espacio entre los huesos propios y el cartílago triangular, llamándose desde entonces nasolobular (fig. 3, N°. 2).

(b) Nervio esfenopalatino. — Rama del ganglio Meckel. Se divide en varios ramos de los que importa conocer el esfenopalatino interno y el esfenopalatino externo. El esfenopalatino externo (fig. 2, N°. 2) inerva la mucosa de los cornetes superior y medio llegando hacia atrás hasta el orificio tubario. El esfenopalatino interno (fig. 1, N°. 2) pasa por la cara anterior del cuerpo del esfenoides, llega al tabique, cruzándolo diagonalmente. Al pasar por el conducto palatino anterior al paladar, se anastomosa con el palatino anterior (fig. 1, N°. 3). Este nervio preside, en gran parte, la sensibilidad del tabique.

(c) Nervio nasal posterior.—Ramo del palatino anterior (fig. 2, N°. 3). Se distribuye por la mucosa del cornete inferior.

INERVACIÓN EXTERNA

La inervación externa de la nariz está dada también por tres nervios: el

nasal externo, el nasolobular y el infraorbitario.

(a) Nervio nasal externo.—Ramo del nasal tributario del oftálmico (fig. 3, Nº. 1). Preside la sensibilidad de la raíz del apéndice hasta el borde inferior de los huesos propios.

(b) Nasolobular.—Viene de la parte

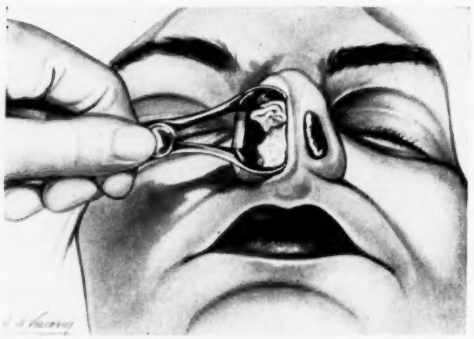


Fig. 4. En la fosa nasal izquierda se ve la parte anterior de la lámina de algodón que está aplicada contra el tabique. En el lado derecho, esta lámina ha sido llevada hacia arriba. En el espacio dejado por la misma, se ha colocado otro fragmento de algodón que se apoya contra el tabique y el suelo nasal. El separador de Killian facilita la maniobra.

interna de la nariz (fig. 3, Nº. 2). Es el ramo terminal del filete externo del nasal interno. Sale de la nariz entre el borde posterior del cartílago triangular y el borde inferior del hueso propio, inervando parte del dorso y del lóbulo nasal.

(c) Ramos medianos del infraorbitario.—Se abren en forma de abanico y contornean la nariz desde el ala hasta el reborde y vestíbulo nasal (fig. 3, Nº. 3). Sensibilizan también las partes laterales.

ANESTESIA ENDONASAL

La anestesia endonasal se puede lograr mediante varios procedimientos.

1º. Inyección.
2º. Embrocación.
3º. Imbibición.
4º. Pulverización.

1º. *Inyección.*—La anestesia de la mucosa nasal se obtiene mediante, inyecciones de clorhidrato de novocaína al 1 por ciento, adicionándole solución de clorhidrato de adrenalina al 1 por ciento, una gota por cada 10 c.c. Esta forma de anestesia sólo debe ponerse en práctica cuando se quiere efectuar una resección submucosa del tabique con fines correctores.

Fig. 5. Con el pulpejo de los dedos pulgar e índice de la mano izquierda (Barnes) tomamos un pliegue en el entrecejo, ejerciendo primeramente suave y luego enérgica presión para embotar la sensibilidad a ese nivel.

2º. *Embrocación.* — Se reviste con algodón la punta de un palillo largo, improvisando así un hisopo, que se embebe luego en el líquido anestésico, exprimiéndolo bien para eliminar el excedente. En seguida, se le introduce en la fosa nasal bajo el control de la

Fig. 6. A nivel de la raíz del apéndice nasal se hace una puntura con una aguja muy fina y muy corta. Se llega al periostio inyectando 2 c.c. de solución anestésica. Se retira luego la aguja hasta el tejido celular inyectando 2 c.c. más. Se hace después lo mismo hacia uno y otro lado, bloqueando en esta forma el nervio nasal externo.

Fig. 7. Por el mismo orificio se introduce una aguja de seis centímetros de longitud, delgada y flexible. Se infiltra todo el sureo nasogeniano sobrepasando un centímetro el borde de las fosas nasales. A esta altura formamos luego un pliegue para buscar mejor el plano de anestesia. Bloqueamos aquí el ramillete mediano del infraorbitario.

vista, con buena iluminación y con un espéculo de Killian. Se imprimen al hisopo, más tarde, movimientos de vaivén, en dos sentidos: ánteroposteriores y verticales. Después de dos o tres minutos, se cambia el hisopo, reiterándose la maniobra un par de veces más. Se aguarda, en total, diez minutos. La anestesia que se consigue es excelente. Su comprobación se verifica mientras se hacen los toques. Presenta, ella, empero, muchos inconvenientes. A saber: *(a)* es una maniobra dolorosa en tanto subsiste la sensibilidad; *(b)* es

Fig. 8. La aguja ligeramente encorvada se introduce nuevamente por el mismo orificio y avanza a través del tejido celular hasta la punta de la nariz, infiltrando el dorso, el apex, la columella y parte anterior del septum. Bloqueamos aquí el nasolobular y las terminaciones del nasal interno.

muy traumática; *(c)* puede dar lugar a hemorragias. Nosotros, por tales razones, no la recomendamos.

3º. *Imbibición.*—Como en el procedimiento anterior, este tipo de anestesia, puede efectuarse a través de algodones montados en palillos o a través de pequeños portalgodones metálicos, haciendo descansar sobre la zona que se procura insensibilizar el algodón de estos hisopos, convenientemente embebidos en el líquido de referencia. Generalmente, ellos se apoyan contra el septum ósteocartilaginoso: uno en la

parte superior, otro en la parte media y el tercero en la parte inferior. Dado que anestesian únicamente la región con la cual entran en contacto, es lógico presumir que algún punto de la mucosa del tabique y de los cornetes seguirá conservando aún su sensibilidad, resultando, por lo mismo, para el enfermo, innecesariamente penosa toda maniobra endonasal en los preliminares, durante el acto y después en el postoperatorio.

De cualquier manera, si se emplea esta clase de anestesia, ella debe practicarse también con buena iluminación, con un espéculo de Killian y bajo control de la vista.

En la mayoría de los casos, nosotros realizamos la anestesia de la mucosa nasal por imbibición, utilizando, no obstante, una técnica completamente distinta a todas aquellas que se llevan publicadas hasta ahora. Nos conducimos así: ya preparadas con anticipación, tomamos una de las láminas de algodón de forma rectangular en su origen, de dos a cinco centímetros de diámetro, y la impregnamos del líquido anestésico, eliminando de inmediato el excedente. A continuación, visualizamos la cavidad, colocando el espéculo de Killian y con una pinza en bayoneta aplicamos el algodón contra el tabique, extendiéndolo totalmente, en sentido ánteroposterior y también, de arriba hacia abajo, hasta cubrirlo parcialmente. El algodón ha tomado, ahora, la forma de un cono truncado. Mientras se produce la anestesia, pasamos al lado opuesto, donde repetimos idéntica operación. Cuando transcurren algunos minutos, el algodón, que permanecía apoyado sobre la mucosa del septum, es llevado hacia arriba con la ayuda de una pinza en bayoneta, siempre bajo el control de la vista y con el espéculo colocado en la nariz. Ahora, el algodón ha sido conducido a la parte superior, quedando así localizado en el ángulo formado por el septum ósteocartilaginoso y los huesos propios en la parte más alta o posterior, y por el septum y los cartílagos triangulares o laterales en la parte anterior. Inmediatamente, colocamos una segunda lámina de algodón, embebida en el líquido anestésico, con la cual revestimos la parte del tabique que quedara descubierta al trasladar hacia arriba la primitiva lámina, como asimismo el suelo de la fosa nasal (fig. 4). Repetimos después, en el lado contrario, la misma operación, y luego de esperar diez minutos más, pasamos a practicar la anestesia externa de la nariz, mediante una técnica que será detallada más adelante.

Estimamos que nuestra anestesia endonasal es ideal, en virtud de que resulta completa y absoluta. Se consigue con ella insensibilizar la parte interna más alta del puente de la nariz, formada, como se sabe, por los huesos propios, los cartílagos triangulares y el septum ósteocartilaginosos. Si no se recurre a este arbitrio nuestro, no llega nunca hasta allí la anestesia externa, ni la endonasal, sucediendo, entonces, que al pasar ya sea el escoplo, la sierra o la cizalla a nivel de la cara mucoperióstica interna de los huesos nasales o de la cubierta mucopericóndrica del septum y de los cartílagos, se origina un dolor agudo que el enfermo acusa frecuentemente. Además, cuando se procede con la tijera o con el bisturí, al liberar el caballete para su eliminación, ocurre también que se produce una torcedura o ligera subluxación a nivel de la articulación del septum cartilaginoso con la lámina perpendicular del etmoides por detrás, o con el vómer por debajo. Todos los trastornos, como decimos, son subsanados mediante la aplicación de nuestra técnica.

4º. *Pulverización.* — Esta forma de anestesia, que nosotros declaramos no haberla empleado nunca, se encuentra virtualmente desterrada de la cirugía plástica. Ahora bien: ¿Qué substancias utilizamos con mayor frecuencia para conseguir la anestesia endonasal? Empleamos el clorhidrato de cocaína, la percaía y la pantocaína. Estudiaremos, en seguida, todo aquello que nos enseñó la experiencia acerca de cada una de estas substancias.

El clorhidrato de cocaína se usa en soluciones de 1 al 10 por ciento, siendo estas últimas, las más eficaces. Si bien es el más rápido y el más enérgico de todos, también es el más tóxico. Y aunque con él se obtiene una anestesia perfecta, el enfermo, por lo regular, se pone eufórico, habla, canta y ríe, pudiendo incluso producir estados próximos al síncope, cuando no síncopes verdaderos, todo lo cual representa una desventaja digna de ser tenida en cuenta. Además, las soluciones deben ser preparadas en el momento de la intervención, a causa de que se alteran muy fácilmente. Por tales motivos, entendemos que el clorhidrato de cocaína tiene que ser prescripto con mucha prudencia, pese a que continúa gozando aún del favor de algunos cirujanos.

La pantocaína es un derivado de la novocaína. Se usa en soluciones al 2 por ciento. Su preparación carece de complicaciones. Es menos tóxica que la cocaína. Su índice de toxicidad coincide con el de la percaína, siendo su acción, sin embargo, mucho más instantánea, aunque de menor duración. Con esta substancia tuvimos muchos casos de excitación molesta.

La percaína es un derivado de la quinina, muy soluble en agua y en alcohol. Es nuestro anestésico preferido. La empleamos en soluciones al 2 por ciento. A veces, la preparamos nosotros mismos en el instante de la intervención. Otras veces, utilizamos la que ya viene preparada especialmente. Su acción es lenta y retardada. Para que se produzca su efecto analgésico, hay que esperar, por lo menos, unos diez minutos. No obstante, luego, su acción resulta muy duradera, prolongándose aún durante varias horas después del acto quirúrgico. Por lo regular, no provoca nunca fenómenos de excitación nerviosa. A pesar de ser la menos tóxica de todas, debe usarse con suma precaución.

Como tanto la pantocaína, como la cocaína y la percaína son substancias tóxicas, perjudiciales al organismo, conviene siempre no emplear más que las cantidades estrictamente necesarias. El exceso, al pasar a la parte posterior, ocasiona la anestesia del velo del paladar y de la rinofaringe. Esto impide la deglución de la sangre, de los coágulos y de la saliva que se acumula en la parte superior y posterior, perturbando el acto operatorio, debido a que el enfermo experimenta graves molestias, se agita y se desespera como si se estuviese asfixiando. Tampoco le es dado, por paresia muscular, sonarse la nariz, al final o durante la intervención si el cirujano se lo solicita. Si la lámina de algodón tiene más de la proporción indispensable de líquido, al llevarla a la parte superior, ocurre que el excedente es eliminado, cayendo a la rinofaringe.

Insistimos en que los algodones portadores de estas substancias deben ser embebidos con mesura, a fin de que el sobrante del líquido no determine los disturbios que acabamos de apuntar. Muchos cirujanos aconsejan anestesiar de este modo al paciente antes de que sea conducido a la sala de operaciones, comenzando así por restarle importancia

a dicho acto. Nosotros opinamos que esa conducta importa una desventaja, y por tal razón, realizamos la anestesia en la sala de operaciones, asignándole a ella el valor que tiene. Opinamos, asimismo, que la anestesia no debe ser confiada nunca a un enfermero. Ni siquiera a un ayudante por más experto que sea. En nuestro concepto, el que opera no sólo tiene que afrontar la responsabilidad del acto operatorio, sino también la responsabilidad de la anestesia. No hay que olvidar, por último, que estas soluciones, altamente concentradas, jamás pueden ser inyectadas y se emplean solamente para hacer toques en la mucosa.

ANESTESIA EXTERNA

Hace mucho tiempo que nosotros abandonamos la anestesia troncular, substituyéndola por la anestesia local infiltrativa, que iniciamos en el entrecejo. A ese nivel, con los pulpejos de los dedos índice y pulgar de la mano izquierda, tomamos un pliegue cutáneo, tal cual aconseja el maestro Bames (fig. 5). Mediante suaves presiones, primero, y enérgicas, después, conseguimos a esa altura un ligero embotamiento traumático de la sensibilidad. Inmediatamente, con una jeringa de diez centímetros cúbicos, equipada de una aguja muy fina, con punta más bien corta y de buen filo, que se tiene ya dispuesta y preparada en la mano derecha, se llega verticalmente hasta el plano correspondiente al periostio, sobre los huesos propios, depositando allí un centímetro cúbico de líquido anestésico (fig. 6). Después, se retira la aguja, algunos milímetros, hasta el tejido celular subcutáneo, infiltrando en ese sitio, de dos a cuatro centímetros cúbicos. Durante ese tiempo, conviene apretar enérgicamente con los dedos, a nivel de la parte superior de la raíz nasal, a fin de impedir el pasaje del líquido a la región frontal, zona sobre la cual no se va a intervenir. Se aguarda un momento, supuesto que con la infiltración que se ha expandido de cada lado, se trata de bloquear el nervio nasal externo, cambiándose entretanto la aguja primitiva por otra de seis centímetros de longitud, también fina y flexible, que se introduce luego a nivel del mismo orificio anterior. Se avanza, más tarde, en forma oblicua, infiltrando simultáneamente, hasta recorrer en su totalidad el surco nasogeniano (fig. 7), sobrepasando un centímetro el borde libre de la fosas nasales. A esta altura, conviene formar con el pulgar y el índice de la mano izquierda un pliegue que permita buscar mejor el plano más adecuado para continuar la anestesia. Se consigue, así, la insensibilización de la parte lateral y de la región alar de la nariz, en razón de que esta zona se encuentra inervada por el nervio nasal externo en la parte alta y el ramillete mediano del nervio infraorbitario, anestesiado durante este acto. Se sabe, asimismo, que las terminaciones nerviosas de esos nervios se anastomosan, presidiendo, como se ha dicho, casi por entero, la sensibilidad externa de la nariz. Se retira de nuevo la aguja y se encorva. Después de esperar dos o tres minutos se la introduce en el mismo orificio otra vez. Se la hace avanzar a través del tejido celular recorriendo todo el dorso hasta llegar a la punta (fig. 8) infiltrando, a medida que se avanza, durante todo el trayecto. Este tiempo, igual que los precedentes, comúnmente se ejecuta sin dificultad alguna. Sin embargo, a menudo, suele interponerse como un obstáculo, susceptible no obstante de ser salvado, una giba muy pronunciada, que conspira contra la normalidad de la maniobra, bastando muchas veces para solucionar

esto con infiltrar un poco más de líquido en el tejido celular subcutáneo, que se halla más arriba de la gibosidad. Al levantarse así la aguja, se puede encontrar un plano de fácil conducción. Se puede, asimismo, lateralizarse la aguja y con ello salvarse el obstáculo, gracias a que estando la piel y el tejido celular ya parcialmente infiltrados, los desplazamientos se hacen a voluntad. Se dispone todavía de dos recursos más. Uno consiste en elevar, tomando con el dedo pulgar e índice de la mano izquierda, la punta de la nariz, obligando al órgano a dirigirse en busca del extremo de la aguja y sorteando así transitoria-

Fig. 9. Cuando una giba pronunciada impide que se llegue con la aguja a la punta de la nariz, ésta se eleva mediante la maniobra que se muestra, haciendo que la misma vaya al encuentro del extremo de la aguja, sorteando de esta manera el obstáculo.

mente la giba (fig. 9). Otro consiste en atravesar o perforar la gibosidad con la aguja para llegar hasta la punta. Si la giba es blanda y cartilaginosa, la operación no ofrece ningún impedimento. Si es dura y ósea, en cambio, se invierten los papeles, resultando imposible la maniobra. De todo modos, no es aconsejable este último arbitrio, a causa de que pueden sobrevenir dos percances: primero, que la aguja se

Fig. 10. En el tiempo anterior el subtabique y la columella han sido infiltrados. Ahora, si es necesario actuar sobre la espina nasal y las apófisis montantes, se procede a infiltrar la espina y el suelo nasal. Nos conducimos aquí como lo muestra la figura, inyectando primero hacia un lado y luego hacia otro.

obture con un segmento de pericondrio, de periostio, de cartílago o de hueso; y segundo, que penetre dentro de la fosa nasal.

Se llega con esta infiltración, entonces, hasta la punta de la nariz. Los cartílagos alares se revelan, aquí, bien dibujados. Con el pulpejo del dedo índice de la mano izquierda se rectifica la posición de la punta de la aguja a nivel de la columella, procediéndose a su infiltración juntamente con el subtabique, hasta alcanzar la espina nasal, cosa que se efectúa sin ningún esfuerzo. Queremos, ahora, destacar un hecho de sumo interés y al cual concedemos nosotros una importancia básica. Se trata de lo siguiente: la infiltración de la columella y del subtabique, con nuestro método, resulta absolutamente indolora. Vale decir: ocurre todo lo contrario de lo que pasa con los demás procedimientos que se emplean con un fin

análogo. Nadie ignora que no existe nada más doloroso que la infiltración de la columella y de la espina nasal. Suprimir por completo semejante sufrimiento, como hemos hecho nosotros, equivale, sin duda, a resolver un grave problema de orden técnico y humano.

Conseguimos, de este modo, no sólo hacer indolora la intervención, sino al mismo tiempo la anestesia, a la cual el enfermo le confiere más trascendencia que al suceso mismo del acto quirúrgico. Se vuelve a retirar la aguja y en dos excursiones sucesivas, una a cada lado, se infiltra lateralmente la nariz para facilitar más tarde la intervención. De nuevo se saca la aguja. Como se ve, con una sola puntura, se anestesió, desde la raíz, todo el apéndice nasal. Falta únicamente inyectar a nivel del piso de cada fosa, si es que se desea actuar sobre el ángulo nasolabial y sobre las apófisis montantes del maxilar. Mediante una aguja de escasa dimensión, que se introduce oblicuamente por debajo de la mucosa partiendo de la espina, se infiltra (fig. 10), lográndose con ello una anestesia impecable. Difícilmente el paciente se queja durante la operación, pues, prácticamente queda en condiciones de no experimentar molestia alguna.

Cuando se procede a la infiltración de la nariz, es menester buscar siempre el plano más apropiado del tejido celular, y no inyectar nunca la aguja cuando cae en la dermis. De lo contrario, se corre el riesgo de producir una isquemia por la presión y por la acción vasoconstrictora de la adrenalina. Condenamos, también, la costumbre de hacer habones en esta región para iniciar el acto operatorio.

¿Qué cantidad de líquido anestésico empleamos para insensibilizar la nariz? A nosotros jamás nos preocupa la cantidad. Somos, en este sentido, siempre generosos. Dejamos de lado la disyuntiva, si debemos usar diez, veinte o treinta centímetros cúbicos. Utilizamos la cantidad que, a nuestro modo de ver, es necesaria en cada caso, y nada más. Se dice, generalmente, que no se debe emplear una dosis muy excesiva, en razón de que se resienten los reparos anatómicos y las miras operatorias. Eso sucede con otros procedimientos. Con el nuestro, en cambio, no sucede nunca, pues al practicar las incisiones endonasales, así como la liberación amplia de la cubierta cutánea que recubre la pirámide de la nariz, el excedente del líquido es eliminado en su totalidad, permitiendo de este modo que la anestesia sea perfecta. Por otra parte, una buena infiltración, nos facilita ampliamente la intervención quirúrgica, por la disección infiltrativa que se hace de los planos mediante el líquido inyectado.

La técnica que acabamos de describir nos permite ejecutar la más delicada y completa de las rinoplastias parciales. Vale decir: la operación de una rinomegalia. Nos faculta para actuar sin ocasionar ningún dolor en cualquiera de sus segmentos, y por tanto, en cualquiera de sus distintos elementos constitutivos. Ahora, hay que decir, que no siempre es indispensable hacer esa clase de anestesia, sobre todo cuando se va a realizar una rinoplastia parcial, ya sea a nivel del septum, a nivel de las alas nasales, como de cualquier otro segmento independiente. Aquí, el cirujano, obra lógicamente anestesiando la región sobre la cual actuará únicamente.

RESUMEN

En el presente trabajo el autor hace la descripción de su método de anestesia local en las rinoplastias. Divide su exposición en tres tiempos, a saber: (a) Sedación preanestésica, (b) anes-

tesia de la mucosa nasal y (c) anestesia interna infiltrativa.

Hace un sumario de la inervación interna de la nariz, describiendo con cierto detalle la distribución nerviosa: nervio nasal interno, nervio esfenopalatino y nervio nasal posterior, entrando luego a reseñar la inervación externa: nervio nasal externo, nervio nasolobular y ramos medianos del infraorbitario.

Señala los diversos modos de lograr la anestesia endonasal: inyección, embrocación, inhibición y pulverización. Señala luego los detalles de una correcta anestesia externa, describiendo las substancias anestésicas que deben emplearse de preferencia.

Ilustra su disertación con varias figuras que dan clara idea de la técnica anestésica y de la anatomía nasal. Afirma, finalmente, que con esta técnica se pueden llevar a cabo intervenciones operatorias nasales sin ocasionar al paciente la más mínima molestia o dolor.

SUMMARY

The author describes his method of local anesthesia for rhinoplasty. He divides the subject into three steps: (a) sedation prior to anesthesia, (b) anesthesia of the nasal mucous membrane and (c) internal infiltrative anesthesia.

He summarizes the internal innervation of the nose, describing in detail the nervous distribution; internal nasal nerve, sphenopalatine nerve, posterior nasal nerve; later he goes on to describe the external innervation; external nasal nerve, nasolobular nerve and branches of the infraorbital nerve.

He points out various methods of obtaining the internal anesthesia of the nose; injection, rubbing, inhibition and spraying. Later, he describes the details of correct external anesthesia, analyzing the anesthetic substances that should be employed by preference.

Finally, the author states that with this method any surgical procedure on the nose can be performed without provoking discomfort or pain for the patient.

The illustrations give a clear idea of the technic described and of the nasal anatomy.

RÉSUMÉ

L'auteur nous décrit sa méthode personnelle d'anesthésie locale pour rhinoplastie. Il divise son sujet en trois stades: *a.* la sédation avant l'anesthésie, *b.* l'anesthésie de la muqueuse nasal, *c.* l'anesthésie infiltrative interne.

Il décrit, brièvement, l'innervation interne du nez et décrit en détail la distribution du nerf interne nasal, du nerf sphéno-palatin et du nerf nasal postérieur. Il nous décrit aussi l'innervation externe; le nerf nasal externe, le lerf naso-lobulaire et les rameaus terminaux du nerf infraorbital.

Il indique différente méthodes pour obtenir l'anesthésie interne du nez; l'injection, le frictionnement et la vaporisation. Cela est suivi de la méthode correcte pour obtenir l'anesthésie externe, et est accompagné d'une analysie des différentes substances anesthésiques qui nous procurent les meilleurs résultats.

Les illustrations nous donnent une excellente notion de la technique préconisée par l'auteur, et nous donnent aussi une excellente représentation de l'anatomie nasale.

L'auteur nous assure que toute intervention chiruricale sur le nez peut être accomplie sans que la malade ressente aucune douleur ou aucun malaise.

(Continuado en página 509)

Estadísticas Traumatólogicas

ALFREDO GONZALEZ GARCIA, M.D.
HABANA, CUBA

VAMOS a analizar las estadísticas que a continuación detallaremos, tomadas de nuestro servicio de Traumatología de la Clínica "Ledón Uribe."

En la primera hemos estudiado 6,443 casos de la industria agrícola, observando el número de casos de cada región del cuerpo y el tanto por ciento del número total.

En la segunda analizamos 17,020 en que hemos acoplado los traumatismos industriales y los agrícolas y hemos catalogado los casos igual que en la estadística anterior.

En la tercera analizamos 27,204 casos y hemos hecho un estudio de los cuerpos extraños que se han presentado, dando los tantos por cientos en relación con el oficio del lesionado; con la sustancia introducida y el tanto por ciento segun la región en que estos cuerpos extraños se han alojado.

A continuación de cada cuadro nos limitaremos a hacer algunas observaciones y, al final, las conclusiones en relación con las estadísticas descritas.

En el cuadro No. 1 se observa:

1º. Que a la mano derecha corresponden 803 casos que constituyen el 12.46 por ciento del total de los casos.

2º. Que a la mano izquierda corresponden 2,993 casos que constituyen el 46.45 por ciento de la totalidad de los mismos.

3º. Que a ambos manos corresponde el 58.91 por ciento del total de las lesiones.

4º. Que a los ojos corresponden 685 casos que es el 10.63 por ciento, siendo el tanto por ciento mayor después de los casos de manos.

ESTADÍSTICA POR REGIONES ANATÓMICAS DE ACCIDENTES OCURRIDOS EN LABORES DE CAÑA
(CUADRO No. 1)

Partes del Cuerpo	No. de Lesiones	Porcentaje
Cabeza	73	1.13
Ojos	685	10.63
Cara	47	0.73
Cuello	14	0.22
Clavículas	6	0.10
Hombro derecho	7	0.11
Hombro izquierdo	23	0.36
Brazo derecho	97	1.51
Brazo izquierdo	152	2.36
Mano derecha	803	12.46
Mano izquierda	2,993	46.45
Torax	133	2.06
Tronco	46	0.71
Región abdominal	6	0.10
Región inguinal	13	0.20
Región lumbar	11	0.17
Cadera	17	0.26
Muslo derecho	2	0.03
Muslo izquierdo	2	0.03
Pierna derecha	438	6.80
Pierna izquierda	216	3.35
Rodilla derecha	18	0.28
Rodilla izquierda	242	3.76
Pie derecho	183	2.84
Pie izquierdo	215	3.34
Asfixia	1	0.01
TOTALES	6,443	100.00

En el cuadro No. 2 se observa:

1º. Que a la mano derecha le corresponden 2,907 casos, que son el 17.08 por ciento.

2º. Que a la mano izquierda le corresponden 3,257 casos, que constituyen el 19.14 por ciento, por lo que a ambas manos corresponde el 36.22 por ciento.

3º. Que a los ojos le corresponden 1,743 casos, que constituyen el 10.2 por ciento.

ESTADÍSTICA POR REGIONES ANATÓMICAS DE ACCIDENTES OCURRIDOS EN TODA CLASE DE LABORES

(CUADRO NO. 2)

Partes del Cuerpo	No. de Lesiones	Porcentaje
Cabeza	373	2.192
Cara	680	3.995
Ojos	1,743	10.241
Cuello	46	0.272
Tronco	288	1.692
Torax	606	3.561
Abdomen	145	0.852
Región inguinal	651	3.825
Región lumbar	416	2.444
Región crural	15	0.088
Región saera	87	0.511
Región glútea	35	0.206
Región genital	108	0.635
Cadera	11	0.241
Clavícula	66	0.388
Hombro derecho	141	0.828
Hombro izquierdo	133	0.781
Brazo derecho	167	0.981
Brazo izquierdo	117	0.687
Codo derecho	93	0.546
Codo izquierdo	69	0.405
Antebrazo derecho	315	1.851
Antebrazo izquierdo	302	1.774
Mano derecha	2,907	17.080
Mano izquierda	3,257	19.136
Muslo derecho	113	0.664
Muslo izquierdo	103	0.605
Rodilla derecha	206	1.210
Rodilla izquierda	208	1.222
Pierna derecha	347	2.039
Pierna izquierda	354	2.080
Pie derecho	1,478	8.684
Pie izquierdo	1,389	8.161
Cuerpo extraño (naso-faringe)	3	0.018
Cuerpo extraño (esófago)	1	0.006
Tetanos	2	0.012
Intoxicación	11	0.065
Asfixia	4	0.024
TOTALES	17,020	100.000

ESTADÍSTICA DE CUERPOS EXTRAÑOS

(CUADRO NO. 3)

				Porcentaje
Oficios	Obreros agrícolas		41.	39.047
	Costureras		18.	17.142
	Mecánicos		11.	10.475
	Pescadores		2.	1.904
	Carpinteros		5.	4.761
	Peones		5.	4.761
	Chapistas		1.	0.952
	Neveros		1.	0.952
	Plomeros		1.	0.952
	Choferes		1.	0.952
	Maquinistas		1.	0.952
	Fundidores		1.	0.952
	Comerciantes		1.	0.952
	Leñadores		5.	4.761
	Albañiles		3.	2.857
	Tejedores		2.	1.904
	Chapeadores		2.	1.904
	Guarda Campos		1.	0.952
	Remachadores		1.	0.952
	Mineros		1.	0.952
	Estibadores		1.	0.952
Cuerpos Extraños	Minerales	Fragmentos metálicos	38.	36.190
		Cristales	1.	0.952
		Agujas	20.	19.042
	Animales	Huesos	1.	0.952
		Espinas de pescado	3.	2.857
	Vegetales	Astillas	14.	13.333
		Espinas	26.	24.757
		Otros	2.	1.904
Región	Mano		51.	48.571
	Hombro		5.	4.761
	Brazo		18.	17.142
	Maxilar superior		1.	0.952
	Pierna		15.	14.285
	Ojo		2.	1.904
	Pie		8.	7.619
	Torax		1.	0.952
	Labios		1.	0.952
	Tráquea		1.	0.952
	Amígdala		1.	0.952
	Oído		1.	0.952
Número de casos examinados			27,204	
Número de cuerpos extraños			105	0.380

En el cuadro No. 3 se observa:

1º. Que a los obreros agrícolas corresponden 41 casos del total, que constituye el 39.04 por ciento.

2º. Que siguen en orden de frecuencia las costureras, entre las que se encuentran 18 casos y constituyen el 17.14 por ciento.

3º. Que a fragmentos metálicos corresponden 38 casos, que constituyen el 36.19 por ciento.

4º. Que a la mano le corresponden 51 casos, que representan el 48.57 por ciento.

De lo expuesto anteriormente se derivan las siguientes conclusiones finales:

1º. Que las lesiones de la mano ocupan el mayor tanto por ciento de todas las lesiones del cuerpo.

2º. Que las lesiones de la mano izquierda son más frecuentes que las de la mano derecha.

3º. Que en la industria agrícola hay gran diferencia entre las lesiones de la mano izquierda y de la derecha, debido

a la maniobra descompasada a veces en el bombeo de la caña.

4º. Que cuando se acoplan los traumatismos en general, el tanto por ciento de las manos disminuye notablemente y no existe la diferencia tan enorme entre la mano derecha y la mano izquierda.

5º. Que cuando analizamos la estadística de cuerpos extraños también observamos que el mayor tanto por ciento corresponde a las manos.

6º. Que el mayor porcentaje de cuerpos extraños existe en los obreros del campo, por ser éste un país eminentemente agrícola.

7º. Que los cuerpos extraños minerales alcanzan el mayor tanto por ciento.

8º. Que es importante señalar en los servicios traumatólogicos, la atención urgente y cuidadosa de cada caso, atendiendo las manos con el esmero que corresponde al gran porcentaje de las lesiones de las mismas, y tener también el servicio del oculista con la urgencia que se necesita.

Nota: Quiero por este medio dar las más expresivas gracias a mis colaboradores los Dres. J. Castañeda, Juan F. Pelaez y a los alumnos F. Elósegui y M. Gonzalez.

SUMMARY

In this article the author makes several generalizations regarding traumatic lesions of the hand. Injuries to the hand are more frequent than to any other part of the body, the left hand being injured more frequently than the right, especially in agricultural areas. He cites in particular injuries occurring among workers in the sugar cane fields.

Injuries involving foreign bodies follow the same general pattern, the foreign bodies themselves being generally mineral in character.

The author emphasizes the extreme importance of early and adequate care of such lesions. He also mentions the need for similar care for eye injuries for the same reasons.

RÉSUMÉ

L'auteur fait plusiers généralisations se rapportant aux lésions traumatiques de la main. Les traumatismes de la main sons plus fréquents que ceux d'autres parties du corps. La main gauche est plus souvent blessée que la main droite, surtout dans les régions agricoles. Il cite en particulier des lésions survenant sur les travailleurs des champs de cannes à sucre.

Les corps étrangers enclavés dans la main sont ordinairement de caractère metallique.

Il est d'une extrême importance que ces lésions recoivent un traitement précoce et adéquat. Les lésions oculaires, pour les mêmes raisons, recevront un traitement précoce et adéquat.

Свод

В этой статье автор делает несколько общих заключений относительно травматических поражений руки. Повреждение руки случается более часто, чем повреждение других частей тела, левая рука будучи повреждена более часто, чем правая, особенно в земледельческих областях. Он особенно описывает повреждения среди рабочих в полях сахарного тростника.

То же самое относится к повреждениям, причиненным посторонними телами, обыкновенно, минерального характера.

Автор подчеркивает громадную важность раннего и адэкватного лечения этих поражений. Также он упоминает необходимость такого же лечения глазных повреждений по тем же самым причинам.

REVISTA DE LIBROS

Las Ciencias Médicas en Guatemala. Origen y evolución. Carlos Martinez Duran. Segunda Edición. Guatemala, C. A. Tipografía Nacional, 1945.

Editada con gusto y elegancia, esta obra del Dr. Martinez Duran sirve al lector de deleite y enseñanza. En forma amena y clara se datallan en sus páginas las peripecias de la vida médica guatemalteca desde la epoca prealvaradiana o medicina indígena hasta nuestros días. Va ilustrado el texto con grabados de sumo interest histórico y anecdótico. El esfuerzo realizado por el autor merece encomio y es digno de que otros historiadores médicos de nuestro Continente lo imitaran; así tendriamos a nuestro alcance documentos y relaciones de la evolución médica de Hispano-América que servirian para popularizar el conocimiento de lo mucho que los distintos países de habla española del continente han hecho en pro del avance de la medicina internacional. Felicitamos al Dr. Martinez Duran por su contribución a la pedagogía médico-histórica, que ciertamente se ha enriquecido con esta obra suya de indiscutible valor.

Obra Médica. Enrique J. Corbellini. La Semana Médica, Buenos Aires, 1944.

En este libro se han recogido los trabajos dispersos del maestro Corbellini, fallecido en 1920. Su esposa ha emprendido la labor de reunir en un volumen no sólo sus trabajos más importantes, algunos de ellos nunca publicados, sino también incluye antecedentes históricos sobre Corbellini, relación de homenajes, una corta biografía, firmada por Eduardo Crasa, y otros datos de interés. Fué Corbellino, como dice Artemio Zeno en la "Revista Médica de Rosario," "un gran operador en el sentido más amplio de la palabra." De profundos conocimientos, unió la teoría la aplicación práctica e hizo una clasificación original de las hernias inguinales que adoptan la mayoría de los cirujanos argentinos. El libro que comentamos merece detenida lectura y ofrece la ventaja de llevar en él, reunida, toda la obra de un maestro.

Estudos Cirúrgicos. Eurico Branco Ribeiro, Sao Paulo, 1945 (4ª Série).

En esta serie estudios quirúrgicos se incluyen diferentes trabajos sobre las más diversas materias, desde el empleo de las sulfamidas por la vía arterial hasta un estudios sobre las contingencias post operatorias. Esta nueva obra de las series que publica el Dr. Branco Ribeiro, constituye, como los otros volumenes, obra de interés para el cirujano, por ser una copilación de materias y datos que sirven de recordatorio y enseñanza.

(Continuado desde página 505)

Свод

Автор описывает свою методу местной анестезии при пластике носа. Он делит весь процесс на три стажа: (а) седатизация до анестезии, (б) анестезия носовой слизистой оболочки, (в) внутренняя инфильтративная анестезия.

Он подробно описывает иннервацию носа, как внутреннего: n. nasi internus, n. sphenopalatinus, n. nasi posterioris, так и наружную: n. nasi externus, n. nasobulbaris и ветви n. infraorbitalis.

Он перечисляет разные способы достижения внутренней анестезии носа: вспрыскиванием, натиранием, подавлением и обрызгиванием. Затем он подробно описывает правильную наружную анестезию, анализируя предпочтительные анестезирующие вещества.

Ясно иллюстрирована как описанная техника, так и анатомия носа.

В заключение автор заявляет, что при применении этой методики любая носовая операция может быть произведена без раздражающего для больного неудобства и боли.

ABSTRACT

The Use (for Cosmetic and Biological Reasons) of Plasma-Thromboplastin Adhesion as a Substitute for Sutures in Thyroid Surgery

In a recent issue (Vol. V, No. 3, March, 1946, p. 75) of "Acta Medica Orientalia" appeared an interesting and thought-provoking article under the above title by Drs. Felix Mandl, M. Finkelstein and N. Rabinovici of the Surgical Department B, Rothschild-Hadassah University Hospital, Jerusalem.

These writers have been quite successful, especially from a cosmetic viewpoint, in the use of this physiologic substance for reducing scarring following subtotal thyroidectomy. The photographs which accompany the article illustrate in a striking manner, the improved appearance, over ordinary suture methods, of the results which they have obtained.

Following a brief review of the literature on various uses of this material in surgical closures, skin grafts, etc., the authors give details of their own technic; this is, in part, as follows: "After suturing the platysma, the skin is held apart by fine small forceps and plasma is instilled into the wound from a pipette or syringe. This is followed by thromboplastin and the edges of the wound are then approximated by means of four small forceps. After about 2 minutes the edges remain in position. Only around the drain does this take a few more minutes. After three or four minutes, however, even here adhesion is firm . . . 12 hours after removal of the drain, adhesion is already complete . . . there is no need of their (the patient) keeping the head and neck quiet. After 24 hours, the head can be turned in all directions and the adhesion is extraordinarily firm."

The authors further state that "As soon as six days after thyroidectomy, only a delicate line indicates the site of operation . . . after a fortnight, even this line may have completely disappeared. There is no redness . . . (and there is) absence of any reaction in the wound. . . . After thyroidectomy (when customary suture methods have been used), healing is not always smooth."

The article summarizes the results in 24 operations and concludes, "With this method wound healing after operation has for the first time been established on a biological basis—an object the realization of which, has been pursued for a number of years."

COOK COUNTY
GRADUATE SCHOOL OF MEDICINE

(In affiliation with Cook County Hospital)

Incorporated not for profit

Post graduate courses offered in all branches of Medicine, Surgery and the specialties available throughout the year.

The teaching faculty comprises members of the Attending Staff of the Cook County Hospital.

For information address

REGISTRAR: 427 South Honore Street, Chicago, Ill.